DOCUMENT RESUME

ED 195 697 CE 027 178

TITLE	Communications Handbook. The Wisconsin Guide to Local Curriculum Improvement in Industrial Education, K-12.
INSTITUTION	Wisconsin State Dept. of Public Instruction, Madison. Div. of Instructional Services.
REPORT NO	WSDPI-Bull-1158
PUB DATE	[78]
NOTE	137p.; Small print in some diagrams will not reproduce well. For related documents see CE 027 177-179.
EDRS PRICE	MF01/PC06 Plus Postage.
DESCRIPTORS	*Communications; *Course Content; *Curriculum Development; Educational Improvement; Educational Resources; Elementary Secondary Education; Films; *Industrial Education; Instructional Improvement; Instructional Materials; Learning Activities; *State Curriculum Guides
IDENTIFIERS	Wisconsin Guide Local Curriculum Improvement Indus

ABSTRACT

This handbook is designed to aid industrial educators in developing communications activities for their programs in order to implement The Wisconsin Guide to Local Curriculum Improvement in Industrial Education, K-12. The book contains the following three sections: (1) content outlines for various methods of presenting communications curricula: (2) learning activities keyed to the learning objectives of the Wisconsin Guide--in areas such as perception, history and development, the communication process, visual communication, electronic communication, and career education: and (3) resources--films, catalogs, tours, personnal career education, and free and inexpensive learning materials. (KC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED195697

COMMUNICATIONS

HANDBOOK

CE027128

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

THE WISCONSIN GUIDE TO
LOCAL CURRICULUM IMPROVEMENT
IN INDUSTRIAL EDUCATION, K-12

PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

L. Hormatuck

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC).

THIS PROJECT WAS SUPPORTED BY FUNDS
APPROPRIATED UNDER THE
EDUCATIONAL AMENDMENTS OF 1976 - TITLE II
PUBLIC LAW 94-482
PROJECT #9-5516/L084

BUREAU FOR VOCATIONAL AND CAREER EDUCATION
RUEL F. FALK, DIRECTOR

DIVISION FOR INSTRUCTIONAL SERVICES
CATHERINE STEHLY, ED.D, ASSISTANT SUPERINTENDENT

WISCONSIN DEPARTMENT OF PUBLIC INSTRUCTION
BARBARA THOMPSON, PH.D., STATE SUPERINTENDENT

Bulletin No. 1158

DEC 4 1980

TABLE OF CONTENTS

Rationale
Rationale 2
Preface 3
Objectives 4

Content Outlines
Communications 6

Learning Activities
Perception 18
History and Development 37
Communication Process 42
Visual 50
Electronic 62
Other 74
Career - Education 80

Resources
Resources 107
Career Education Resources 110
Free Films and Catalogs 112
Rental Films List 113
Film Directory 116
Suggested Local Tours 117
Human Resource List 118
Free and Inexpensive Learning Materials (Pamphlets) 119

RATIONALE:

A rationale is a reason for existence or prepared action. In curriculum development it answers the key question of "why" something is taught.

A rationale is thus a justification statement which highlights the importance of the program, course or unit which it is directed at.

The statement is generally short, concise and directly to the point. The rationale that follows in this resource handbook provides the user with a set of ideas to use in developing a statement for local use.

RATIONALE

People communicate continuously. Intrapersonal communication is always occurring. Most people communicate daily with other people, objects, machines, and creatures. We communicate as members of a world society in general and within and between societal institutions in which we elect to participate. The need to communicate effectively has importance in local, regional, national, and global affairs and beyond.

Communications technology along with other technologies is becoming increasingly complex at a rate that is difficult for many people to comprehend. Several examples might include the storage and retrieval capabilities of computers, intensified light beams produced by lasers, the potential of fiberoptics, transmission by way of microwaves and orbiting satellites, and three-dimentional motion pictures produced through holography. Along with emerging technologies, much refinement is continuing in more common graphic and electronic forms of communications.

Communication is such an important factor in the lives of people that it seems essential that students at all levels of education have an opportunity to study elements of communication beyond that which is taught in units and courses in reading, writing, and speaking.

Schools in Wisconsin and across the nation are responding by offering communications as a part of industrial education curriculum.

PREFACE

This handbook is intended to aid industrial educators in developing communication activities into their programs. The Communications Handbook is not a course of study, but rather a resource to aid in local program improvement. It is designed to be used by educators to aid them in implementing The Wisconsin Guide to Local Curriculum Improvement in Industrial Education, K-12.

The content outlines, models, structures and activities can be utilized for courses, specific units or for integrating communication concepts throughout the industrial education program.

The materials included in this handbook come from a number of excellent resources that have been developed to improve communication education. Where the sources were known credit is given for inclusion.

Mr. Jerry Ciesielczyk
Shawano High School
1050 South Union
Shawano, WI 54166

Mr. Gary Wendorff
Clintonville High School
255 N. Main Street
Clintonville, WI 54929

Mr. M. David McFarlane
CESA #1
Washburn Public Schools
Washburn, WI 54891

Dr. Leonard F. Sterry (Consultant and Editor)
Graphic Communications
University of Wisconsin-Stout
Menomonie, WI 54751

OBJECTIVES

Three main objectives of communication curriculum in industrial education have become apparent:

1. To enable students to develop communication skills for daily living.
2. To explore interests and career opportunities in communications.
3. To prepare for occupations in communications related industries.

CONTENT OUTLINES:

Content in any curriculum area can be structured in many different ways. In addition, the manner in which the content overview is communicated to other professionals can take on a variety of approaches.

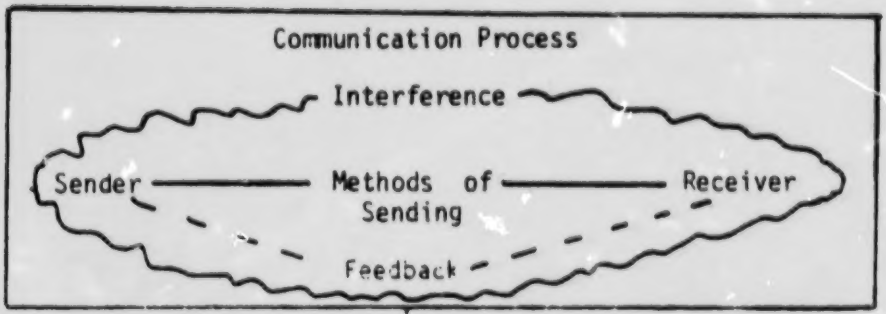
Common approaches for communicating a curriculum structure, scope and sequence are usually in the form of outlines, models or a combination of the two.

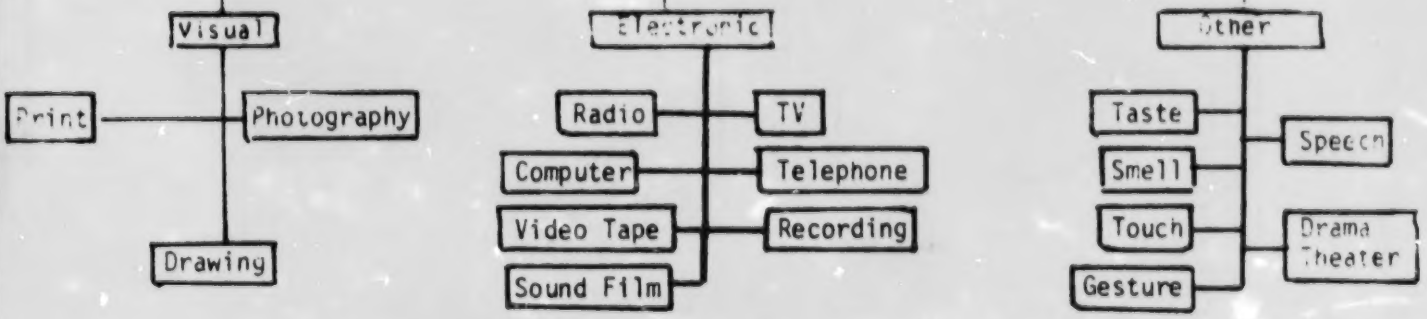
The content structures that follow in this handbook are examples of different ways of communicating the subject to the profession.

COMMUNICATION

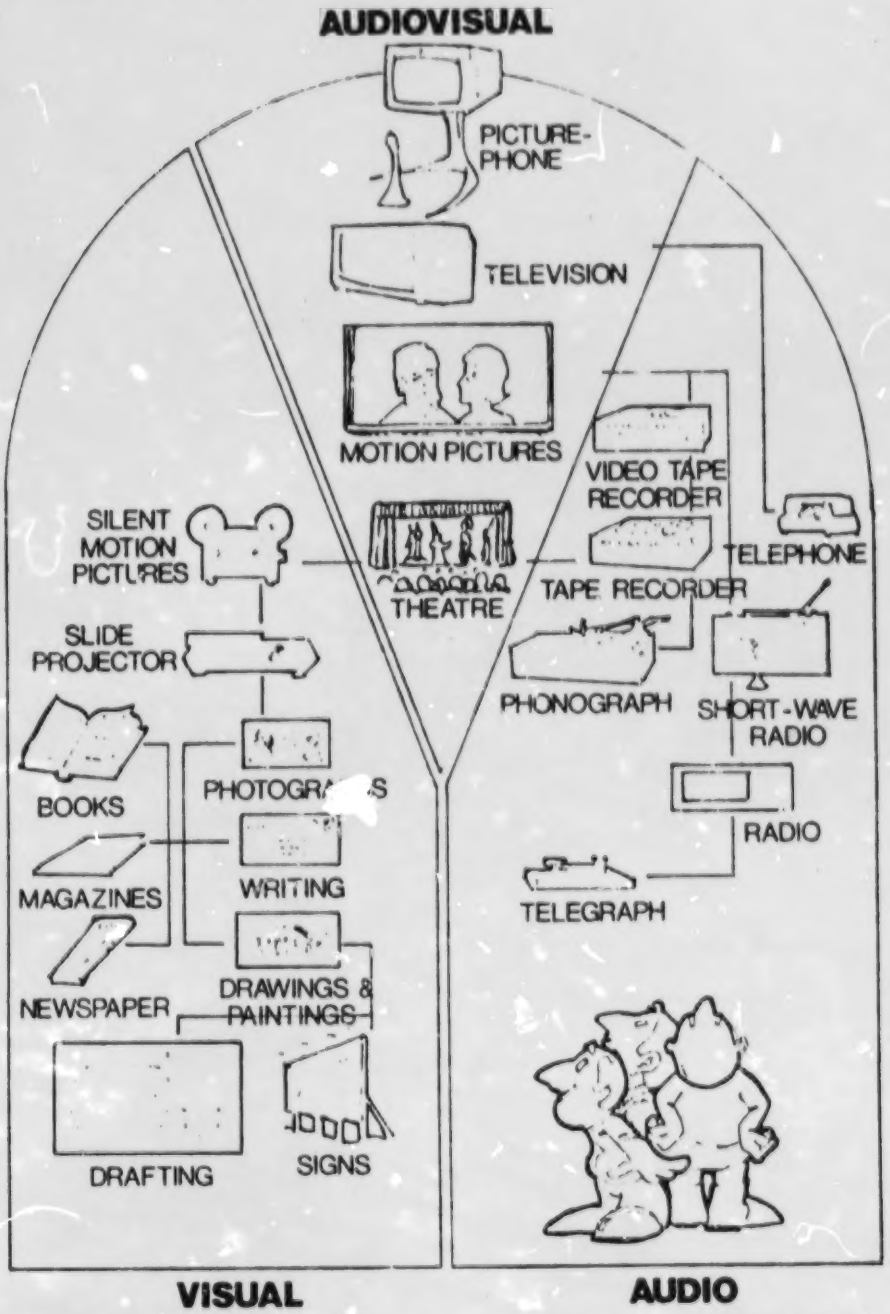
History and Development

Perception

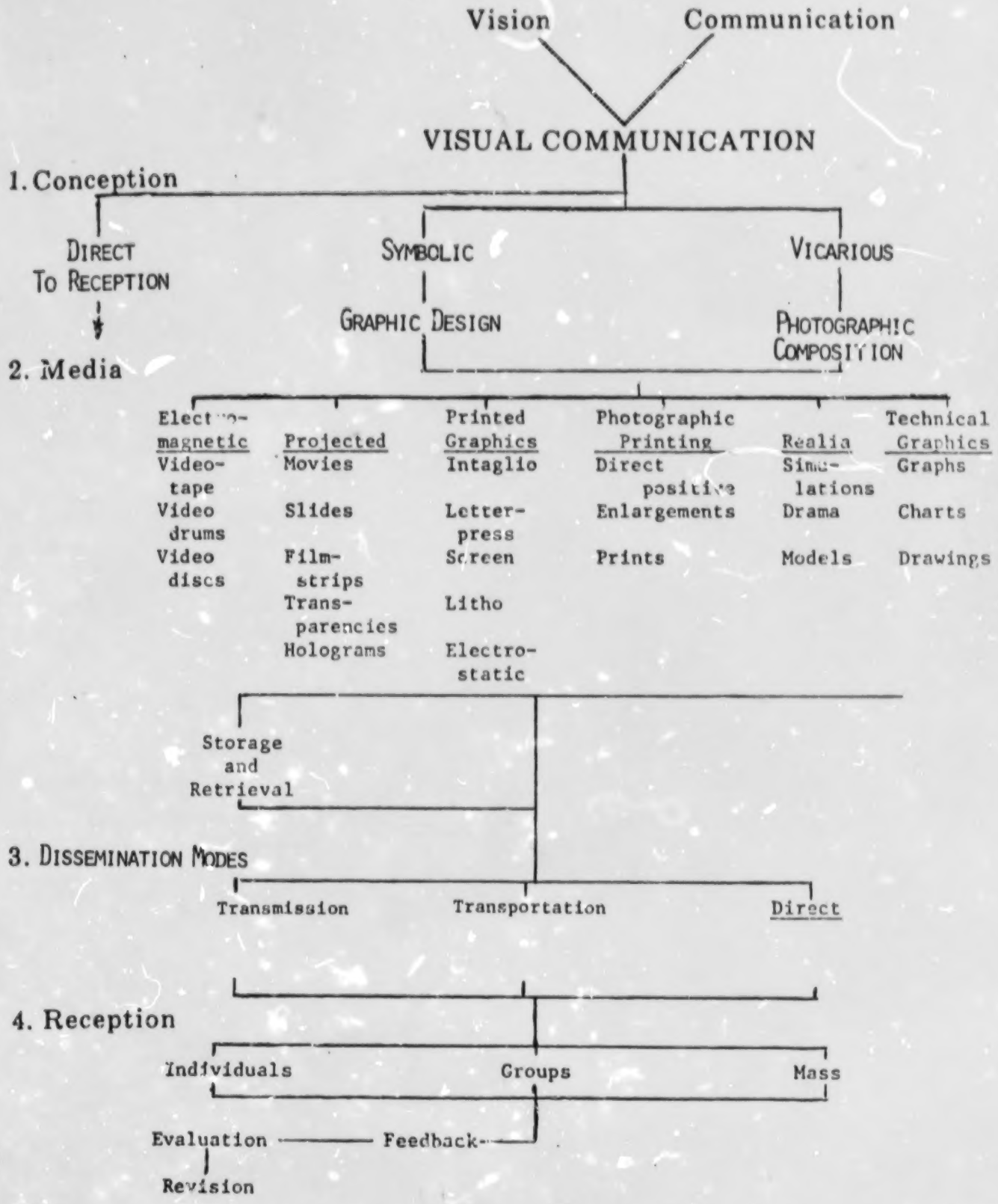




FROM: World of Communications: Visual Media

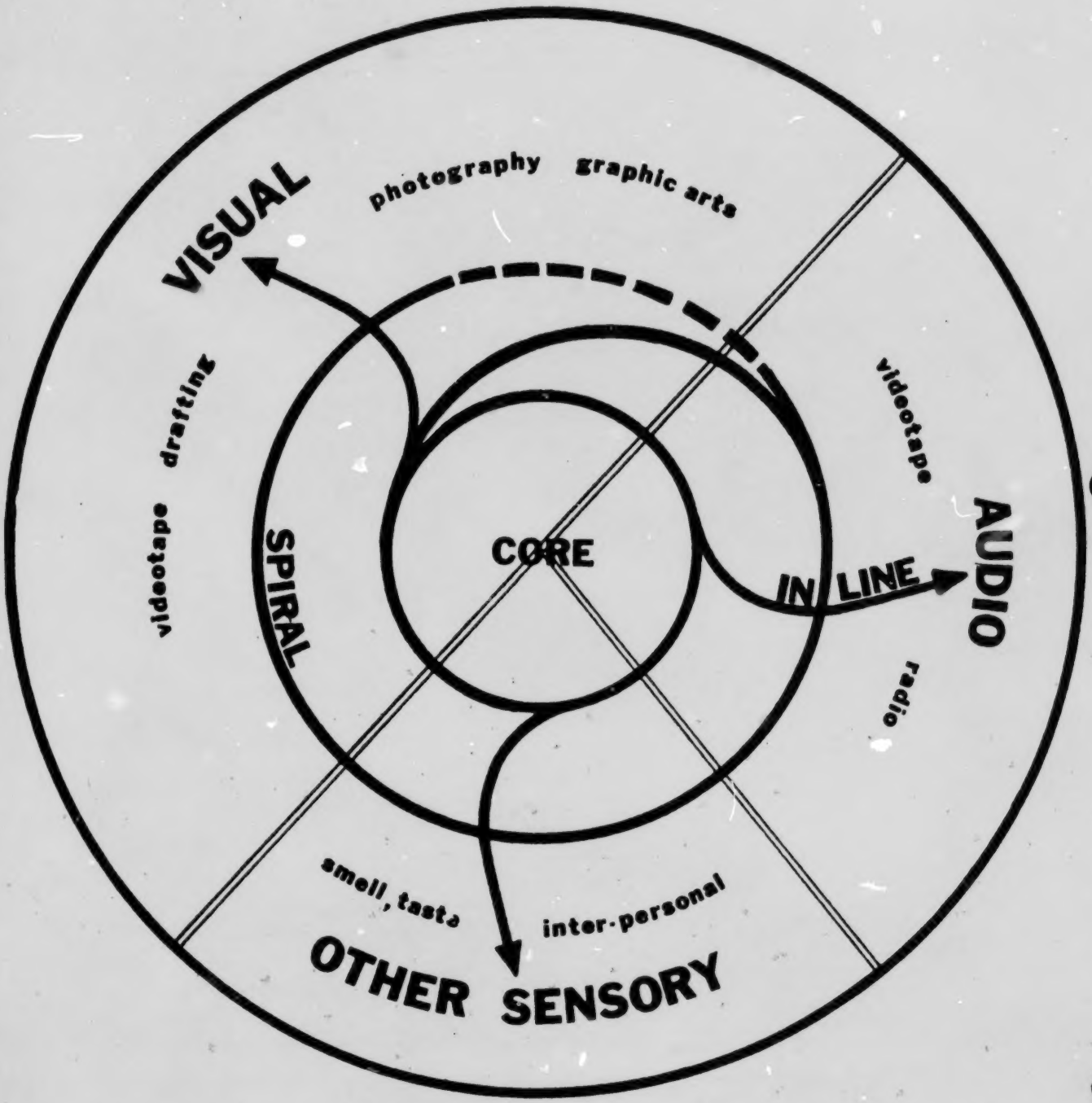


Man has developed audio, visual, and/or audiovisual messages to transmit significant information.


Vision
Communication
VISUAL COMMUNICATION
1. Conception
DIRECT TO RECEPTION
SYMBOLIC
VICARIOUS
GRAPHIC DESIGN
PHOTOGRAPHIC COMPOSITION
2. Media
Electro-magnetic
Video-tape
Video drums
Video discs
Projected
Movies
Slides
Film-strips
Trans-parencies
Holograms
Printed Graphics
Intaglio
Letter-press
Screen
Litho
Electro-static
Photographic Printing
Direct positive
Enlargements
Prints
Realia
Simu-lations
Drama
Models
Technical Graphics
Graphs
Charts
Drawings
Storage and Retrieval
3. DISSEMINATION MODES
Transmission
Transportation
Direct
4. Reception
Individuals
Groups
Mass
Evaluation
Feedback
Revision

INDUSTRIAL COMMUNICATION

PROGRAM MODEL



Source: Shawano IECP

System

BODY OF KNOWLEDGE

COMMUNICATIONS TECHNOLOGY

AUDIO | VISUAL | OTHER

ORIGINAL

Research & Design

1. I. D. Problem
2. Define goals
3. Research
4. Limitations
5. Ideation & conception
6. Analysis
7. Experiment
8. Solution description

Preparation of

1. Paste ups
2. Outline
3. Composition
4. Photo retouch
5. Idea sketching
6. Enlarging & reducing
7. Others

Forms of

1. Drawings
   - –sketches
   - –technical
   - –photo
2. Tape
   - –audio
   - –video
3. Printed media
4. Models
5. Stencils
6. Scripts
7. Pos./neg. print
8. Painting
9. Posters
10. Others

REPRODUCING PROCESS

Projected Image Transfer

1. Light
   - –Blueprint
   - –Diazo
   - –Photographic process
     - –enlarging
     - –contact
2. Heat
   - –Thermofax
   - –Others
3. Electro static
   - –Xerox
   - –Others
4. Electromagnetic
   - –Audio tape wire
   - –Video tape
   - –Teletype

Direct Image Transfer

1. Itaglio
2. Planograph
   - –Spirit
   - –Offset
3. Relief
   - –Letter Press
   - –Linoleum Block
   - –Wood Block
   - –Typewriter
4. Stencil
   - –Serography
   - –Mimeograph

Others

PRODUCT

Methods of Dissemination

1. Hard copy
   - –printed copy
   - –eng. prints
   - –photographs
2. Projected
   - –slides
   - –movies
   - –T. V.
   - –holography
3. Electronic
   - –radio
   - –T. V.
   - –teletype
   - –telephone
4. 3-dimensional
   - –models
   - –exhibits

Preparation for Distribution

1. Packaging
2. Assembly
3. Preserving
4. Mounting

Storage & Retrieval

1. Library
2. Microfilm/ microfiche
3. Files
4. Photographs
5. Computer

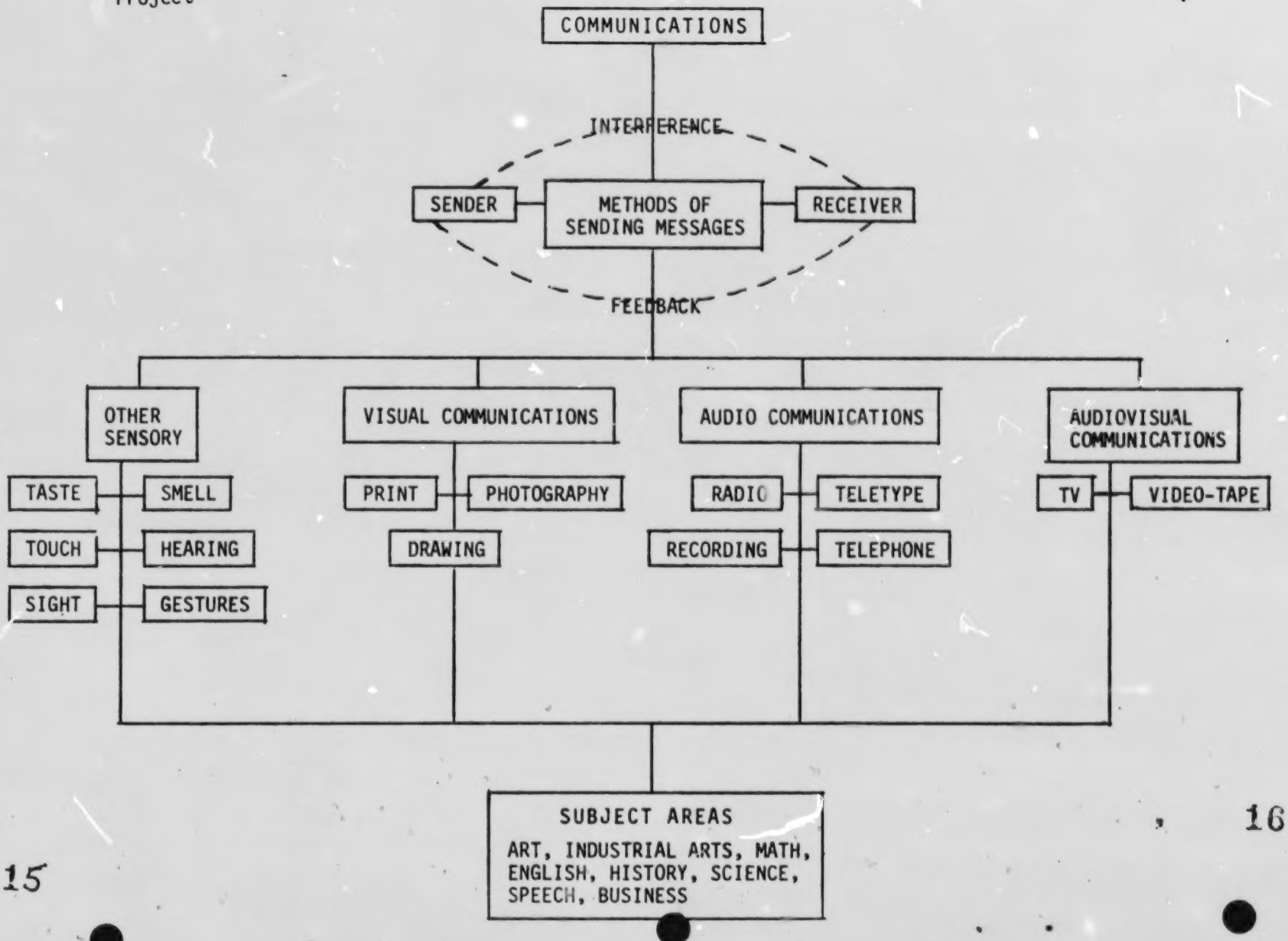
Evaluation & Feedback

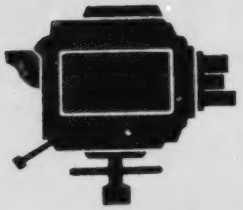
1. Survey
2. Testing
3. Acceptance/ rejection
4. Analysis

Source: Secondary Exploration & Technology

Source: CESA #1 Communications Project

MODEL





COMMUNICATIONS

VISUAL

DESIGN AND LAYOUT

CHARACTER GENERATION

SYMBOLIC DESCRIPTION

IMAGE ASSEMBLY

IMAGE CONVERSION

IMAGE CARRIERS

IMAGE TRANSFER

BINDING AND FINISHING

COMMERCIAL ART

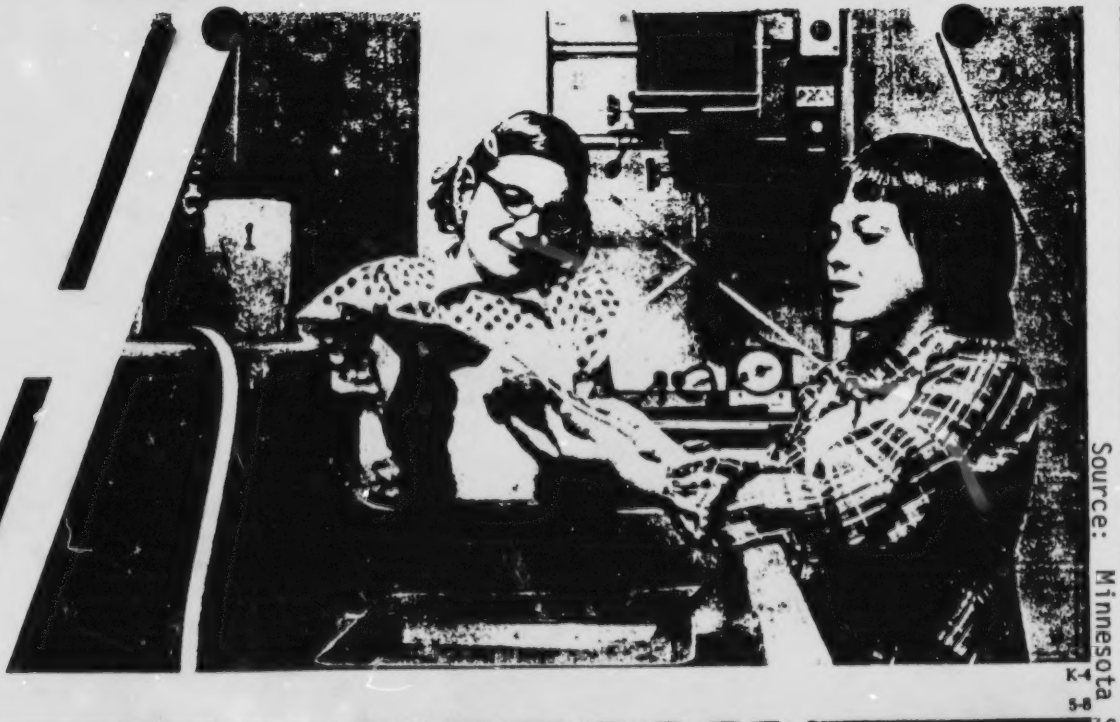
DRAFTING

GRAPHIC ARTS

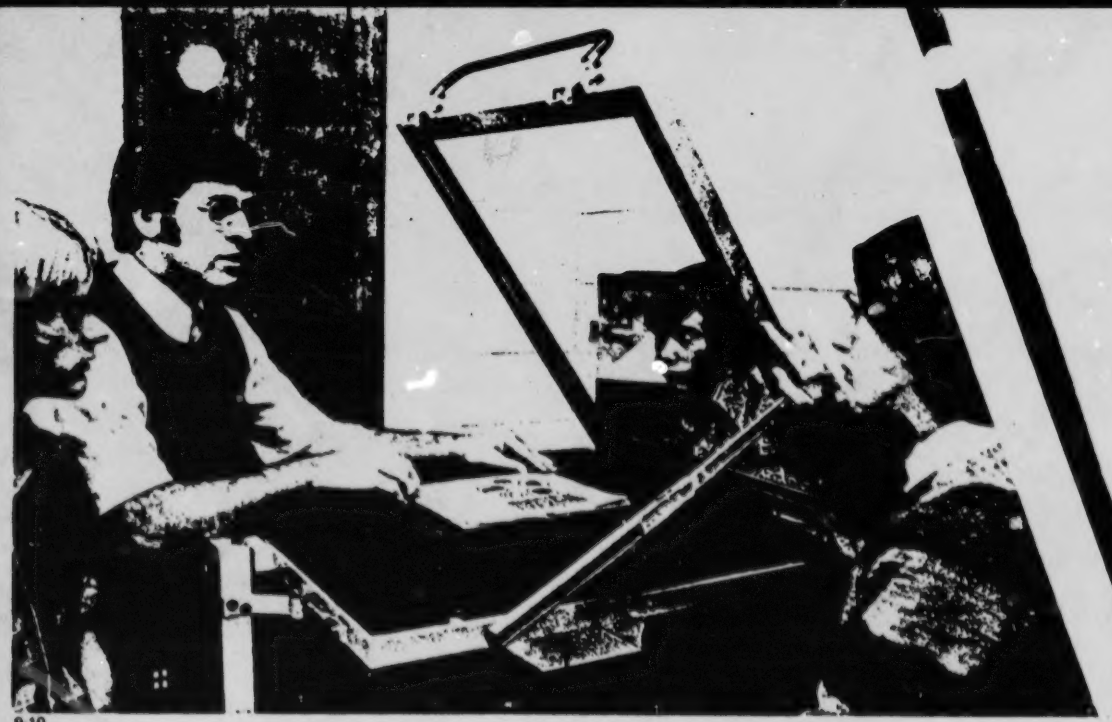
JOURNALISM

PHOTOGRAPHY

PUBLISHING



Source: Minnesota State Guide



9-10
11-12

AUDIO

RADIO -- BROADCAST BAND

SHORT WAVE RADIO

SOUND RECORDINGS

TELEPHONE

TELEGRAPH

TELEMETRY

PHONOGRAPH

PUBLIC ADDRESS SYSTEMS

AUDIOVISUAL

TELEVISION

VICE TAPE RECORDINGS

MOTION PICTURES

LIVE THEATRE

SATELLITES

LASER

Source: S.E.T. Project Industrial Communications Curriculum

PERFORMANCE OBJECTIVES

The performance objectives listed below should provide realistic attainment levels for students enrolled in the industrial communications course described in this guide. Each teacher may wish to establish his own performance levels for the course rather than use those indicated below. However, the test instruments included in Appendix D should prove valuable regardless of teacher choice.

Performance levels are not established for the activities delineated in this guide. Each teacher using this guide is encouraged to establish performance levels for his own class per activity and to build in his own evaluation criteria.

Definitions of Performance Objectives in the Psychomotor, Affective, and Cognitive domains are included in Appendix A.

Cognitive Performance Objective

Upon exiting the S.E.T. Project Industrial Communications course, the students will indicate a knowledge of Industrial Communications as evidenced by a significant increase of 20% in mean score between pre- and post-testing on the S.E.T. Project Industrial Communications Curriculum test.

Affective Performance Objective

Upon exiting the S.E.T. Project Industrial Communications course, the students will indicate the value of the study of Industrial Communications as evidenced by a 15% increase in the mean score between the S.E.T. Project pre-attitude inventory and the post-attitude inventory.

Psychomotor Performance Objective

During the Communications Technology course the student will perform psychomotor skills in at least the imitation and/or manipulation level as evidenced by the teachers records of successful completion of at least eight of ten teacher selected activities that suggest these levels of skill development.

CONTENT OUTLINE

FOR INDUSTRIAL COMMUNICATIONS COURSE

Suggested for Level I course

The sequence presented in content outline is imperative

for the success of the Systems/Conceptual Approach.

One Semester (days)	Topic of Area of Instruction
3 days	I. ORIENTATION A. Pre-test B. Student Orientation
3 weeks	II. INTRODUCTION TO COMMUNICATIONS A. How man Communicates B. Communication systems in industry 1. Television and audio 2. Photography 3. Printing 4. Design and drawing 5. Models
14 weeks	III. SYNTHESIS OF COMMUNICATIONS THROUGH PRODUCT DEVELOPMENT A. Research and design 1. State problem 2. Retrieve information 3. Describe and evaluate information 4. Rough sketch of solution 5. Refined sketch of solution 6. Make models 7. Experiment and evaluate design 8. Report to management B. Technical Preparation 1. Make technical drawings 2. Make illustrated drawings 3. Write specifications 4. Reproduction of prints C. Presented Media 1. Live presentation a. Compile information (purpose) b. Outline c. Select necessary A.V. materials d. Present information e. Survey 2. T.V. or radio a. Psychology of commercials b. Compile information (purpose) C. Outline d. Write video and audio script e. Staging f. Producing the commercial

Con't. next page

Industrial Communications Course (con't.)

	3. Printed copy a. Compile information and outline b. Design layout and composition c. Paste-up d. Make plate e. Print copies f. Collate and assemble g. Distribution D. Preparing service information 1. Decide information to be used 2. Decide on form of dissemination 3. Compile information 4. Compose information 5. Decide method of dissemination E. Preparation for distribution 1. Design packaging for product
2 days	IV. POST-TEST A. Closing class procedures

NOTE CONCERNING THE

BODY OF KNOWLEDGE/CONTENT FORMAT

It is impossible to delineate an activity or activities for each segment of the Body of Knowledge if teaching at the system/concept level. The Body of Knowledge could easily be taught if each component was allotted a given time with no reference made of the interrelationship of components to the total system.

Therefore, the S.E.T. teachers attempted to delineate system level activities within a format that covers the majority of the components found in the Body of Knowledge.

LEARNING ACTIVITIES:

The ultimate success of any program centers in the quality of the instruction that takes place. Central to this success is the quality of the teaching and learning activities that are used in meeting stated objectives.

Industrial education programs have always focused on laboratory approach of "learning by doing." The ideas for teachers and the learning activities for students that are included in this handbook were selected as exemplary learning experiences.

Industrial education programs should be exciting, relevant and action oriented. Well designed activities, selected from a variety of sources, that motivate students are included as suggestions for improving instruction.

PERCEPTION

From: Wichita Public
School Guide

PERCEPTION

What is perception? When a person perceives an object, do we mean that he sees the object physically, or that he understands and identifies the object mentally? Perception involves both of these processes: physically seeing the object and identifying the object (thinking about what you see). The following paragraphs will discuss the physical and conceptional aspects of perception and how these two processes must be interrelated in order for a person to perceive the world.

When a person looks at an object, the light reflected from the object enters his eye and is focused onto a light-sensitive retina. The retina then sends nerve impulses to the brain by means of the optic nerve. However, if the visual pattern was then interpreted in his brain the way a camera records a picture (without thinking), he would not perceive the world as he actually does. Instead, he would perceive a very abstract image which would probably be a flat pattern of various colors and intensities of light. "There would be nothing to tell us that this visual pattern represented solid objects with well-known identities, distributed about us in space."[1] We could still see the image, but if thinking did not enter into the process, the image would have no meaning to us. There would be no mental identification of the object we see as an apple or a tree. Thus, physical eyesight provides the individual with valuable visual information, but eyesight in itself is not enough for the individual to perceive and to understand what he sees.

Thinking, or conceptualizing, is the other process necessary for man to perceive the world. Our minds are constantly at work solving problems and classifying information. It seems we are always thinking about something, even when we try to completely erase all thoughts from our minds, and we still cannot help but think. Man is a curious creature who feels the need to know and to understand everything that he comes into contact with. Because of this, we deem it essential to identify the objects we see surrounding us and to unite our experiences in a more or less rational manner. If we had no way of linking our experiences and classifying them according to similarities and differences, our lives would be a chaotic, whirling mass of scenes, bits of fragmented reality whizzing past us and leaving us alone in an incomprehensible void. How then, is a man able to provide this essential link between his experiences which enables him to perceive the world? In the

---

[1] M. D. Vernon, The Psychology of Perception, Penguin Books, Baltimore, 1962, p.13.

case of eyesight, we employ mental processes such as recalling past experiences, comparing objects to one another, and relating visual information to the other senses, to help us classify and understand the objects we see. Visual information is fed into our minds as previously described, and once there it is combined with and compared to other forms of stored information so that an identification of the object can be made. Suppose we happen to see some object; from the back of our mind we recall having seen a rock with similar characteristics to this object; we further recall that the rock was rough and heavy and somewhat jagged. The visual pattern we are receiving from the object appears to be quite similar to the rock we previously saw, and because they are thus related, we are able to conclude that what we now see before us is also a rock and is probably heavy and rough. Many other examples of this generalization process can be given. They all would lead to the same conclusion--through the use of mental processes acting upon the visual information provided, we are able to distinguish between and identify the objects that we see.

Thus, one can conclude that both physical eyesight and thinking are necessary to perceive the world. Eyesight is necessary to provide visual information, and thinking is necessary to interpret this information into something meaningful and indentifiable. As a whole, perception itself is affected by certain inherent human qualities. An individual's cultural background and the extent of his experiences play an important role in his perception. According to his particular background, he is taught which objects and which aspects of objects are important and he soon begins to overlook certain qualities of objects in favor of qualities he is familiar with and has been taught are important. The judgment (psychological set), which he thus acquires, is constantly modified as he adds new bits of knowledge to his storehouse of experiences and from this, one can also conclude that his perception of the world is constantly changing. Another factor concerning how and what we perceive is the fact that man chooses, to some degree, what he wants to see. He chooses what objects he wants to look at and the places where he wants to be and, hence, he chooses that which he perceives. All of us have different tastes and tendencies. Because of this we all perceive the world somewhat differently. Nevertheless, all of us perceive the world in the same general manner--first we obtain visual information and then we interpret this information mentally in such a way that it becomes meaningful and understandable to us.

WHAT YOU SEE IS WHO YOU ARE

The first activities you will be doing are disigned to get you thinking about the unique way that you "take in" messages from the outside world.

Try this word association test: Cover the words below with your hand. Show one word at a time. Then write the very first word that comes to mind in the blank space next to it.

Up_____ Inside_____

Black_____ Father_____

Yellow_____ Cross_____

Religion_____ Lemon_____

Hockey_____ Rheostat_____

Summer_____ Knarf_____

In a very small way this list shows you how your mind works. It gives you some idea of the memories your mind connects with these words. Some people make the same connections as you do (lots of people will write white in response to black). So in some ways your mind is like theirs. But how about the word "cross"? People may have varied associations with "cross" and there will probably be even more differences in their responses to "rheostat," which is a word that some of you may not know. What would you predict about the responses to "knarf" (a nonsense word we invented)? The responses can't come from an agreed-upon meaning, there isn't one. But they may come from associations with the sound. As you talk to people, or watch TV, or read a book, or ride a bike, your brain is constantly making connections that make these activities take on meaning to you. You connect all sorts of things - images, words,

ideas, memories, dreams, melodies, odors, etc. Your mind is a very complicated thing!

The words in this list, like all words, are symbols that stand for real things. The word symbols, as you have just seen, call up associations in your mind, associations that come out of your experience and learning. Some of these associations are private: they belong only to you, because they are connected to some experience that only you have had. But many of the associations you have with words must be held in common with everyone else who speaks the same language you speak. If that weren't true you wouldn't be able to communicate at all. If you say "Please pass the bread" to someone who doesn't know what those words mean, all he will hear is some noise. He won't be able to make any sense out of it at all.

What does all this have to do with communication? When you communicate, you exchange symbolic messages with other people. The associations you have with word symbols - the private associations and the associations you have in common with others - determine what messages you can receive. This set of letters will probably have very little effect on you:

TERMINATE LINEAR VELOCITY

Whereas this set may affect you quite a bit:

STOP!

The difference in the way you receive these two messages may mean that you simply don't have the knowledge in your mind to decipher the first set, or that the second set is something you have seen on traffic signs. Perhaps you remember being in a car where the driver didn't respond to a STOP sign, and you heard the wail of a police siren following you.

The associations your mind makes with words also determine the kind of messages you send out. You might see a sunset and say:

WOW! LOOK AT THAT! OOOO!

While this message might not even form in your head:

NOTICE THE IRIDESCENT REFLECTIONS ON THE WATER.

or

SUN GO NIGHT NIGHT.

This activity is about your mind and its unique quality. There is no mind exactly like it; there never has been and there never will be.

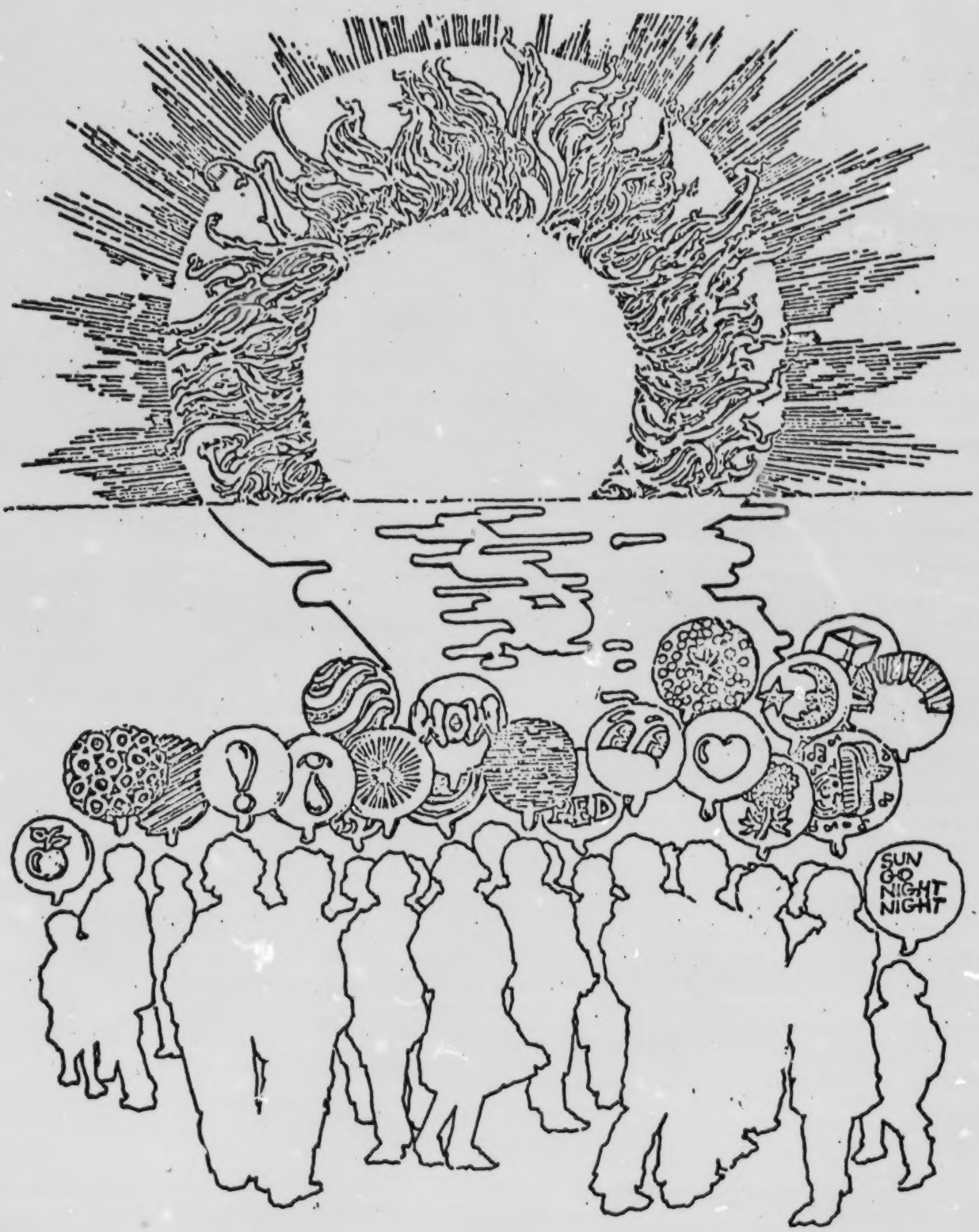
What goes into your mind and comes out of it depends on what is already there.

It is always changing.

Knowing something about your own mind will make you better able to hear others and to speak to others.

Knowing something about other people's minds will make it easier to hear them and to reach them.

STOP
TERMINATE
LINEAR
VELOCITY


TIRED
SUN SO NIGHT NIGHT

THE MIND BENDERS

THIS IS A DAZZLING, OVERWHELMING, MIND-BENDING WORLD. MASS COMMUNICATIONS BARRAGE US DAILY WITH FACT AND FICTION INDISCRIMINATELY. YOU AND I ARE CAUGHT IN THE CROSS-FIRE. WE ARE LEFT TO OUR OWN POWERS OF DISCERNMENT TO SORT OUT TRUTH FROM HALF-TRUTH, FACT FROM FALSEHOOD, GOODWILL FROM INTRIGUE.

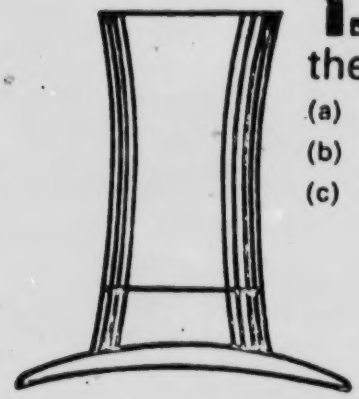
TAKEN FROM: SHAWANO IECP
SHAWANO HIGH SCHOOL
SHAWANO, WIS. 54166

PERCEPTION

THE MIND BENDERS

THIS IS A DAZZLING, OVERWHELMING, MIND-BENDING WORLD. MASS COMMUNICATIONS BARRAGE US DAILY WITH FACT AND FICTION INDISCRIMINATELY. YOU AND I ARE CAUGHT IN THE CROSS-FIRE. WE ARE LEFT TO OUR OWN POWERS OF DISCERNMENT TO SORT OUT TRUTH FROM HALF-TRUTH, FACT FROM FALSEHOOD, GOODWILL FROM INTRIGUE.

SOURCE: SHAWANO IECP
SHAWANO HIGH SCHOOL
SHAWANO, WI 54166



1.

the silk hat is

(a) 3 times as high as it is wide

(b) 2 times as high as it is wide

(c) as tall as it is wide

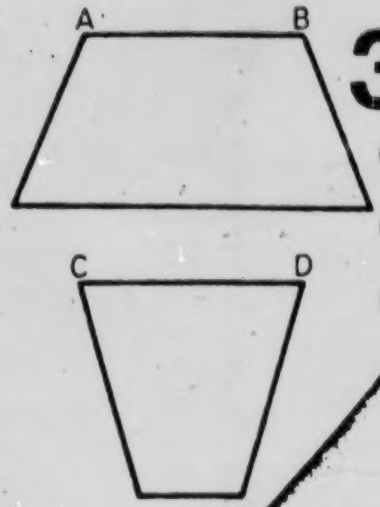
THE SPACE A B IS

(a) 10% greater than B C

(b) equal to space B C

(c) 20% greater than B C

THE MIND GENIUS ®



3. the upper horizontal line of the lower figure is

(a) 10% longer than the upper horizontal line of the top figure

(b) 10% shorter than the upper horizontal line of the top figure

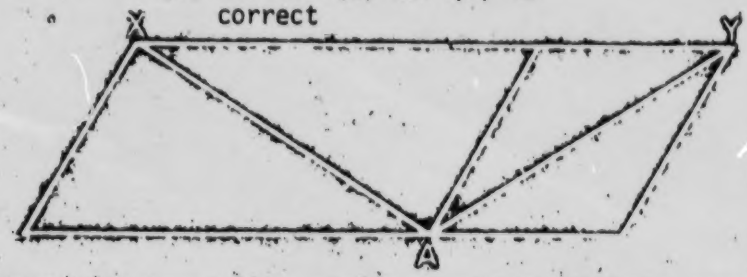
(c) neither (a) nor (b) is correct

line X-A is

(a) equal to line A-Y

(b) 1½ times line A-Y

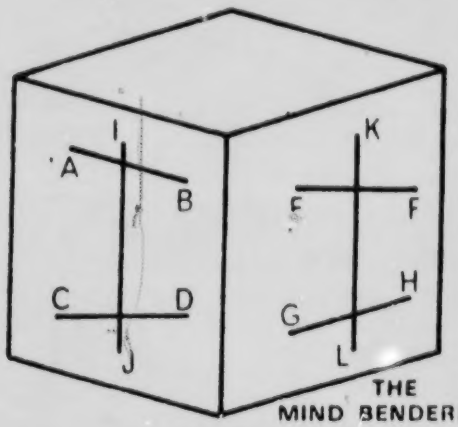
(c) neither (a) nor (b) is correct



5. (a) lines A-B & C-D make right angles (90°) with line I-J

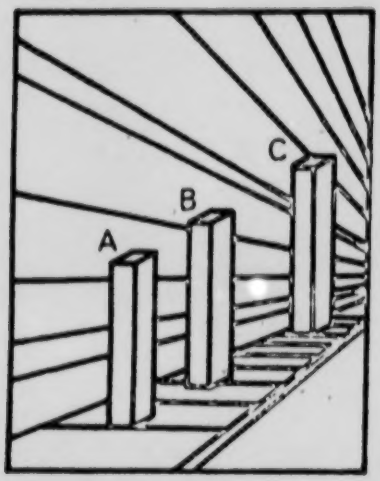
(b) line C-D crosses line I-J making right angles

(c) line E-F crosses K-L to make an oblique angle (greater than 90°)



THE MIND BENDERS

6.



(a) object A is bigger than B is bigger than C

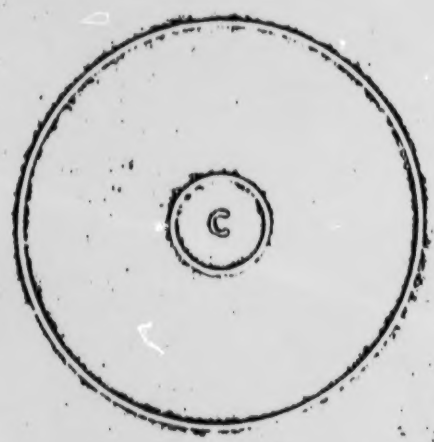
(b) objects A, B and C are of equal size

(c) object A is smaller than B which is smaller than C

(a) circle "A" is bigger than "B" which is bigger than "C"

(b) circle "B" is equal to circle "C"

(c) circle "B" is equal to circle "A"



THE MIND BENDERS

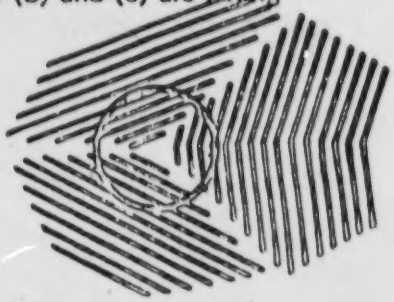
8.

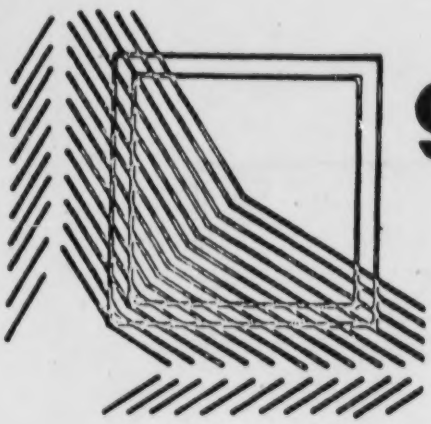
(a) the circular figure is stretched more to the right than to the left

(b) the circular figure is stretched more to the left than the right

(c) the lines on the right appear bent by the influence of the circular figure

(d) (a) (b) and (c) are wrong





9.

(a) the four-sided figure is a perfect square

(b) the four-sided figure is not a perfect square

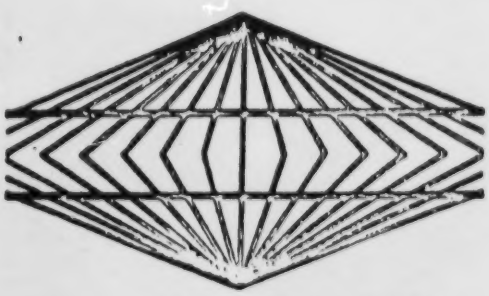
(c) the lines on the square are straight

10.

(a) the top horizontal line is straight; the lower horizontal line is bent

(b) the two horizontal lines are straight

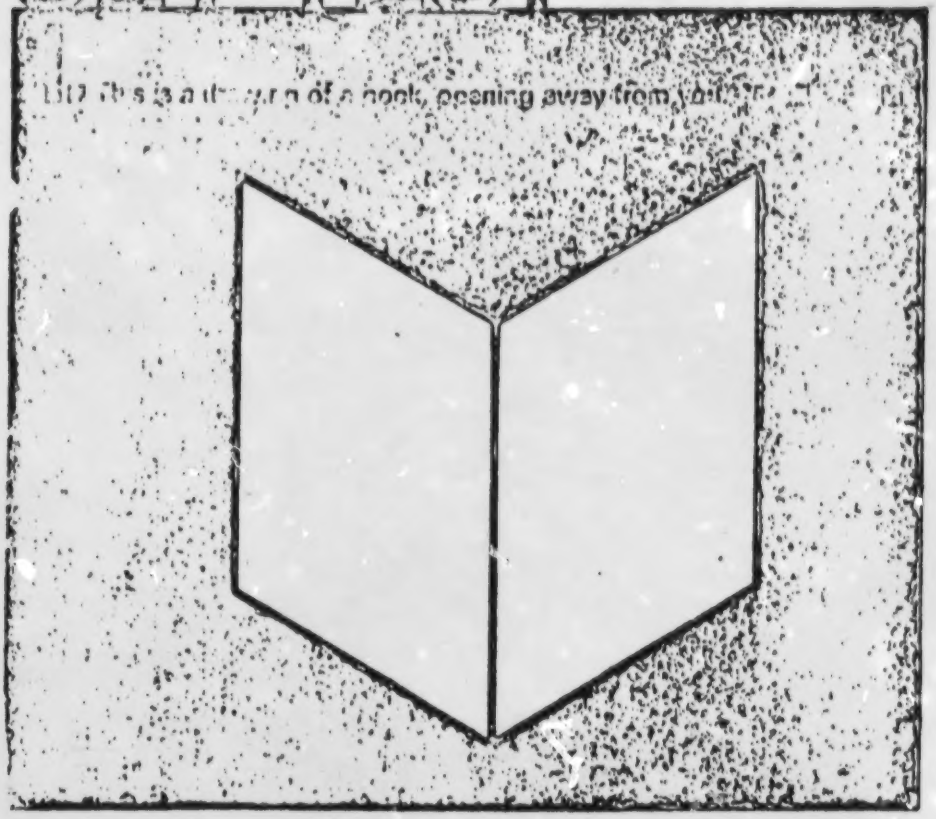
(c) the two horizontal lines are bent



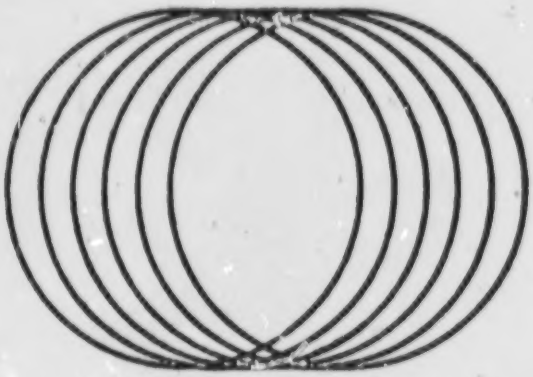
THE MIND BENDERS 9

IMPORTANT, read the descriptive statement before studying the figure. Better still, cover the drawing with your hand while you read the statement.

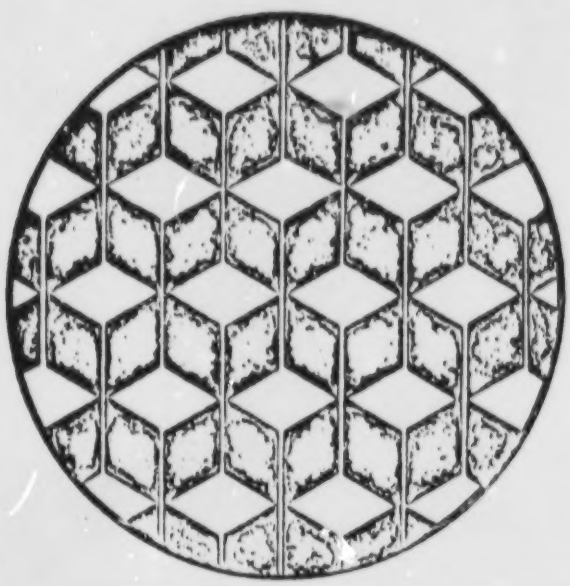
MIND-SET TEST



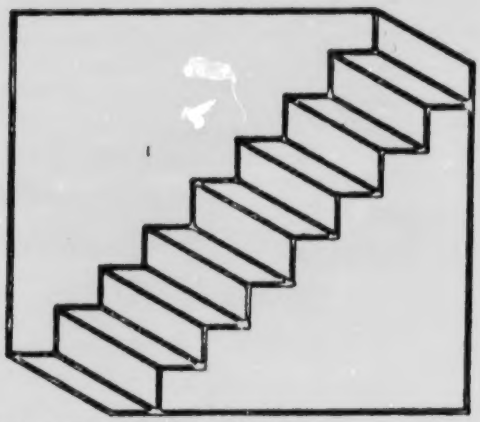
2. This drawing shows a spiral, beginning at the right and flowing to the left. T ☐ F ☐



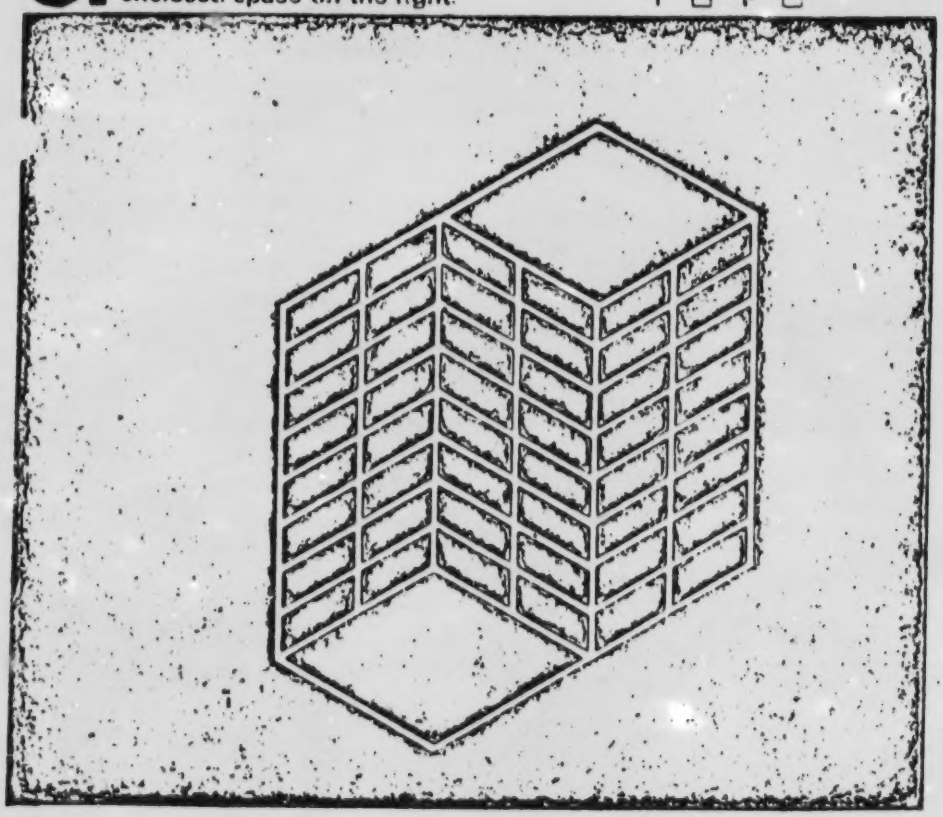
3. This drawing represents the top view of a series of cubes. T ☐ F ☐



4. This drawing represents a stairway with the wall at the right closer to you. T ☐ F ☐



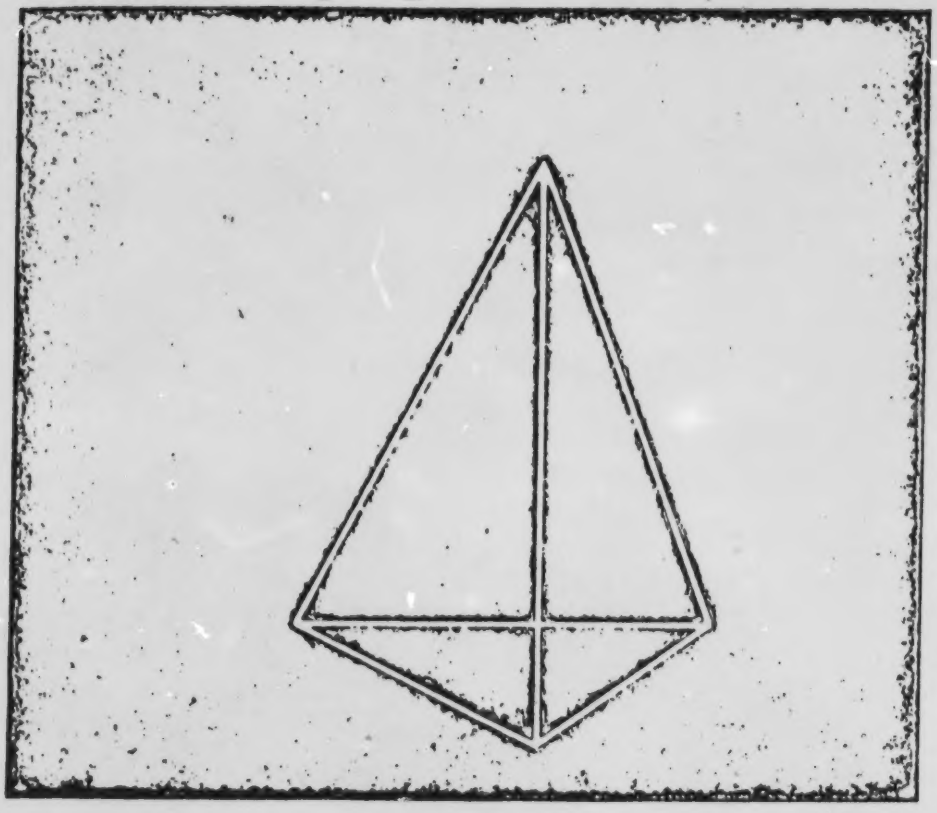
5. This drawing represents an empty corner on the left with an enclosed space on the right. T ☐ F ☐



THE MIND BENDERS 20

6. This is a drawing of a three-pronged object beginning at the left. T ☐ F ☐

7. This is a kite. T ☐ F ☐



THE MIND BENDERS 21

SETTING IS NOT A NEW IDEA

When examining the pictures on the previous page, you noticed how the setting acts upon your visual perception to produce an optical illusion.

It is evident from these experiences that our visual perception is particularly subject to distortion. In fact, a key factor in creating illusions is the setting.

Certainly, the importance of setting is not a new concept. Nature makes constant use of it to protect a great many animals and insects from their enemies. The chameleon changes colour to match his setting and to avoid detection. The lion's colour blends with his setting making it difficult for his prey to detect his presence.

Can you name some other animals and insects that make use of camouflage?

What optical illusion does the architect or artist use to produce drawings in perspective? (Parallel lines meet at a given point, whereas in reality they never meet.)

What architects first made use of an optical illusion in constructing their temples in order to make the base line of a temple look straight? (The Greeks knew that a perfectly straight line running horizontally appears to human vision to sag. To counteract this effect, they made the base line rise slightly towards the centre, thus creating the illusion of a straight line.)

How do the various art forms use optical illusions? (For example: The theatre makes use of a stage and a few props to enable us to fill the rest in with our own imaginations, creating at will, on the same stage, a battlefield, a home, a street, a boat, and so forth.)

HISTORY
AND
DEVELOPMENT

FROM: INSTRUCTIONAL RESOURCES FOR I.E.
418 HARVEY HALL
U.W.-STOUT, MENOMONIE, WI 54751

Era I - Information Sheet

Topics - "The Way Communication Began"

A. Early Cave Drawings
B. Later Cave Drawings
C. Picture Writing
D. Alphabet
E. Talking

References:

1. Encyclopedias under following topics:

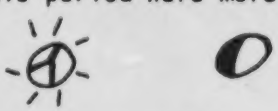
   A. Communications - History of . . .
   B. Writing Development
   C. Man
   D. Language
   E. Paleolithic
   F. Alphabet
   G. Others listed in encyclopedias under these topics

2. Books - check card catalogue under communications

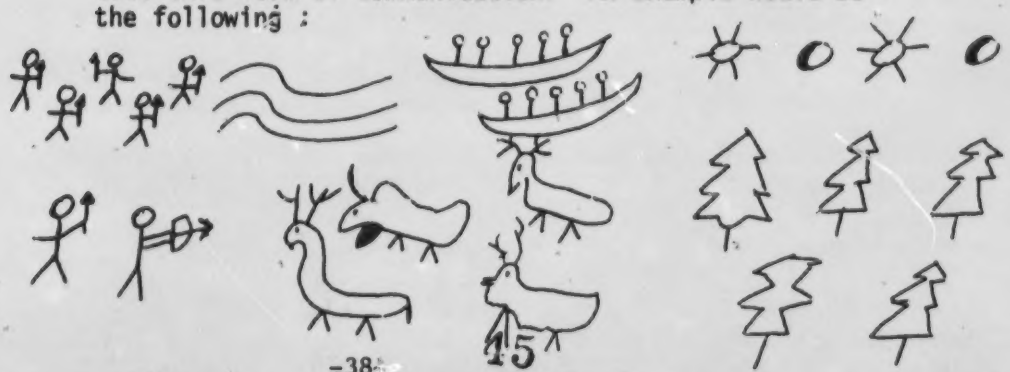
Possible Activities:

A. Early Cave Drawings - Here you may wish to sketch some samples of early cave drawings. Remember that the early drawings were generally stiff looking, two-legged animals without color.

B. Later Cave Drawings - Again sketches would be appropriate to show this form of early communication. The animals and symbols of this period were more structured and contained color.

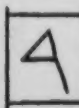
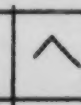
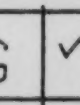
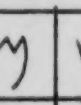
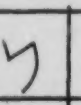
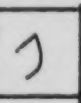
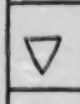
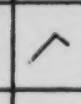
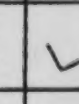
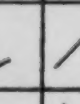
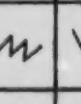
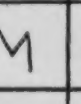
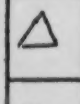
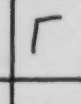
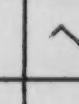
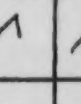
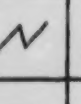
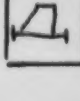
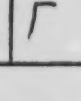
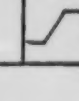
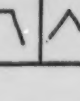
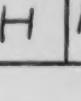


C. Picture Writing - Here the symbols were put together and told of stories or happenings. The American Indians often used this form of communication. An example would be the following :



Translated: Many hunters traveled by river in canoes for two days and two nights and hunted deer and buffalo in the forest.

D. Alphabet - A possibility for this development is looking in encyclopedias and tracing the development of a language from past to present, listing origins and dates. Example:

Tyrian 900 B.C.			G					X
Early Greek 750 B.C.							R	T
Later Greek 400 B.C.				M			P	T
Roman 300 B.C.	D	C	L	M	N	P	R	T
Russian Today					H		P	T

E. Talking - Here a written script could be developed or a tape made of how early sounds developed.

Overall Directions: This group should make a small sign labeling the era of study and also small labels of the periods of study within their era including approximate dates of these developments.

Era II - Information Sheet

Topics - "Messages of Early Times"

A. Fire Signals
B. Beacon Lights
C. Megaphone
D. Drums and Horns
E. Bells
F. Whistles
G. Flags
H. Messengers (runners, riders and pigeons)

References:

1. Encyclopedias under following topics:

   A. Communication - History of . . .
   B. Signals
   C. Light Houses
   D. Megaphone
   E. Drums, History of . . .
   F. Horns
   G. Bells
   H. Whistles
   I. Messengers
   J. Pony Express
   K. Pigeons, Carrier
   L. Related Topics included in encyclopedias

2. Books - check card catalogue on topics.

Possible Activities:

A. Fire Signals - could sketch drawings of fire signals used by cavemen and Indians (smoke signals or flaming arrows) or later developed fire signals where men used torches that they raise from behind walls.

B. Beacon Lights - Here you could research the history of the light house and sketch drawings of its development or construct a model of one type of light house out of wood or clay.

C. Megaphone - Probably the best project to show the megaphone would be to construct a paper or cardboard model. Also pictures could be collected or sketches made of early to later development and use.

D. Drums and Horns - Models of drums and horns could be constructed or pictures collected.

E. Bells - Stories can be gathered of how they were used throughout history. Pictures or samples may be collected.

F. Whistles - Samples may be collected or pictures and sketches made.

G. Flags - The best example would be to obtain or construct a set of signal flags.

H. Messengers (runners, riders and pigeons) - Here it would be easy to collect pictures and list dates of how these systems developed and were used.

Overall Directions: This group should make a small sign labeling the era of study and also other labels of the periods of development within the era, including approximate dates of developments.

COMMUNICATION

PROCESS

SOURCE: SHAWANO IECP

Process Game Directions

1. Choose student to give audio directions describing the object to the class. (3 minutes)
2. Students draw object upon receiving audio directions.
   A. No questions are allowed to be asked of the presenter.
   B. Presenter should not repeat any direction.
   C. Teacher creates much interference.
3. After 3 minutes, all drawing stops, students compare drawings.

Communication Model (Transparency)

1. Describe the communication model.
2. Identify the following:
   A. Sender
   B. Receiver
   C. Interference
   D. Feedback
   E. Channel
   F. Message Vehicle
3. Discuss feedback - Direct and Indirect
   A. Vital component of communication cycle.
   B. What feedback did the sender experience?
   C. Feedback is always present.
4. Discuss Interference - Internal and External
   A. List several sources of interference.
   B. No feedback makes accurate communication difficult.
   C. Psychological interference. (Hating people with blue eyes.)
5. What could have been done to insure more success in communicating the drawing?

Communication Process Game

Process Game Directions

1. Choose student to give audio directions describing the object to the class. (3 minutes)

2. Students draw object upon recieving audio directions.

   A. No questions are allowed to be asked of the presenter.

   B. Presenter should not repeat any direction.

   C. Teacher creates much interference.

3. After 3 minutes, all drawing stops, students compare drawings.

Communication Model (Transparency)

1. Describe the communication model.

2. Identify the following:

   A. Sender
   B. Receiver
   C. Interference
   D. Feedback
   E. Channel
   F. Message Vehicle

3. Discuss feedback- Direct and Indirect

   A. Vital component of communication cycle.

   B. What feedback did the sender experience?

   C. Feedback is always present.

4. Discuss Interference- Internal and External

   A. List several sources of interference.

   B. No feedback makes accurate communication difficult.

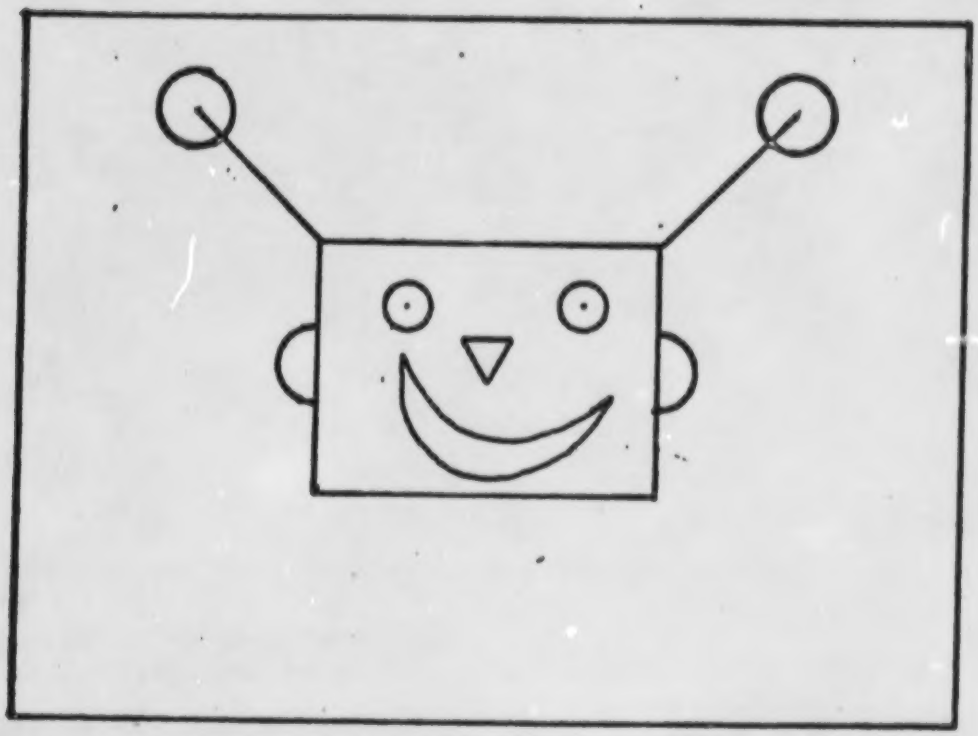
   C. Psychological interference. (Hating people with blue eyes.)

5. What could have been done to insure more sucess in communicating the drawing?

Communication Process Game

Communication sender limitations

1. Oral Directions only
2. No repeats of the directions
3. Use three minutes of time



INDUSTRIAL COMMUNICATION
COMMUNICATION CORE

Name _____

RESPONSE SHEET

COMMUNICATION PROCESS DRAWING

Place object here:

Answer the following questions:

1. Who was the sender?

2. Who was the receiver?

3. List several sources of interference that made the message hard to understand.

4. Was any feedback present? If so, in what form?

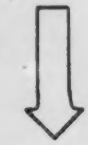
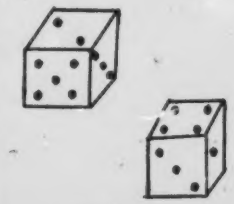
5. A human voice is the (message vehicle) (channel).

6. The atmosphere carries the audio waves of the human voice and is referred to as the (message vehicle) (channel).

7. Feedback may be direct or indirect. The sender received (direct) (indirect) feedback from the receivers.

8. The teacher created (internal) (external) interference by touching your shoulder, putting the lights on and off, etc.

DECODING MESSAGES

BLACK / COAT	WEAR / LONG	B / YOURSELF	AGES
CHAIR	 TOWN	E Z / iiiiiiii	0 / BS MS PHD
/R/E/A/D/I/N/G/		IRI IRI IRI	MOTH CRY CRY CRY
MAN / BOARD	SPL IT		

ANSWERS

BLACK OVERCOAT	LONG UNDERWEAR	BESIDE YOURSELF	DARK AGES
HIGH CHAIR	DOWN TOWN	EASY ON THE EYES	3° BELOW ZERO
READING BETWEEN THE LINES	PARADISE	TRI LEVEL	MOTH BALLS
MAN OVERBOARD	SPLIT LEVEL		

VISUAL

SOURCE: SHAWANO IECP

USE OF INSTRUMENTS

Draw horizontal lines to the specified lengths using the parallel rule. Construct 3 lines in each section:

6-1/2"	
5-1/4"	
4-3/4"	
2-5/8"	

Draw ten vertical lines to the specified lengths in each section below. Use the 45 degree triangle and position it as in the illustration. Pencil is drawn upward.

ILLUSTRATION

3"	2-7/8"	2-3/4"	2-7/16"

In the rectangle provided, draw section lines spaced 3/8" apart, 45 degrees to the right and 45 to the left.

EXAMPLE

TITLE: Design and Layout of a Letterhead

RATIONALE: This activity will enable you to exercise your knowledge of design in the practical application of a personalized letterhead. In addition to displaying your understanding of design, this activity will allow you to have a personal letterhead for your stationery needs.

PERFORMANCE OBJECTIVES:

After completion of this activity you will be able to:

1. Describe in writing the four steps in the layout preparation of a letterhead.
2. Design a letterhead using an acceptable letterhead.
3. Produce one copy-ready letterhead.

PRE-ASSESSMENT:

If you can answer all of the three questions orally to the satisfaction of your instructor you may proceed directly to the enrichment activity.

1. What are the three ways you could letter the original camera-ready copy for a letterhead?
2. How would a camera-ready copy be transferred to a ditto master?
3. How could letterheads be mass produced?

LEARNING ACTIVITIES:

Materials, Equipment and Supplies:

3/4" masking tape
cellophane tape
rubber cement
8-1/2"x11" bond paper
non-reproducing pencil
white correction fluid
felt tip pen
clip art copy
guide sheets
initial letters
decorative items
drawing surface
T-square
triangles
ruler

Enabling Information:

1. Take a piece of bond paper and place it on top of the ruled guide sheet.
2. Align and square the paper and guide sheet to the work surface using a T-square. Secure both sheets with masking tape.
3. Using a non-reproducing pencil, mark very lightly guidelines 1/2 inch from all four edges of the bond paper. Do not put marks to the outside of these border lines. (This is because most duplicators require 1/2 inch gripper margin to grasp the paper.
4. Now, if desired, you may select a symbol or border from one of the clip art sheets or any other available source such as newspapers, magazines or brochures. You may also create an original design.
5. Borders and rules may be added by using commercially marketed pressure sensitive tapes, individually designed creations or border and rule sheets.
6. For a personalized touch, your own handwriting may be incorporated by using a felt tip or technical drawing pen. If typing, be certain to check that the ribbon is good and types a sharp image.
7. You may also want to use transfer or pressure sensitive letters.
8. A Leroy lettering set may also be used to letter your letterhead.

EVALUATION:

Your completed letterhead will be evaluated by the instructor in the following areas:

a. time and effort expended;
b. use of elements and principles;
c. creativity and originality; and
d. neatness.

REFERENCES:

Printing Layout and Design. DelMar Publishers, Inc., New York, 1955.

Basic Lessons in Printing Layout. Karch, R. Randolph, The Bruce Publishing Company, 1952.

Graphic Communications Education Program, South Carolina Department of Education, 1974.

VOCABULARY REVIEW

Directions: Match the definition with the appropriate review words. Insert the correct number from the definitions in front of the correct vocabulary words.

_____thumbnail sketch

_____rough layout

_____comprehensive layout

_____mechanical layout

_____pica

_____non-pareil

_____point

_____italic style type

_____text style type

_____block style type

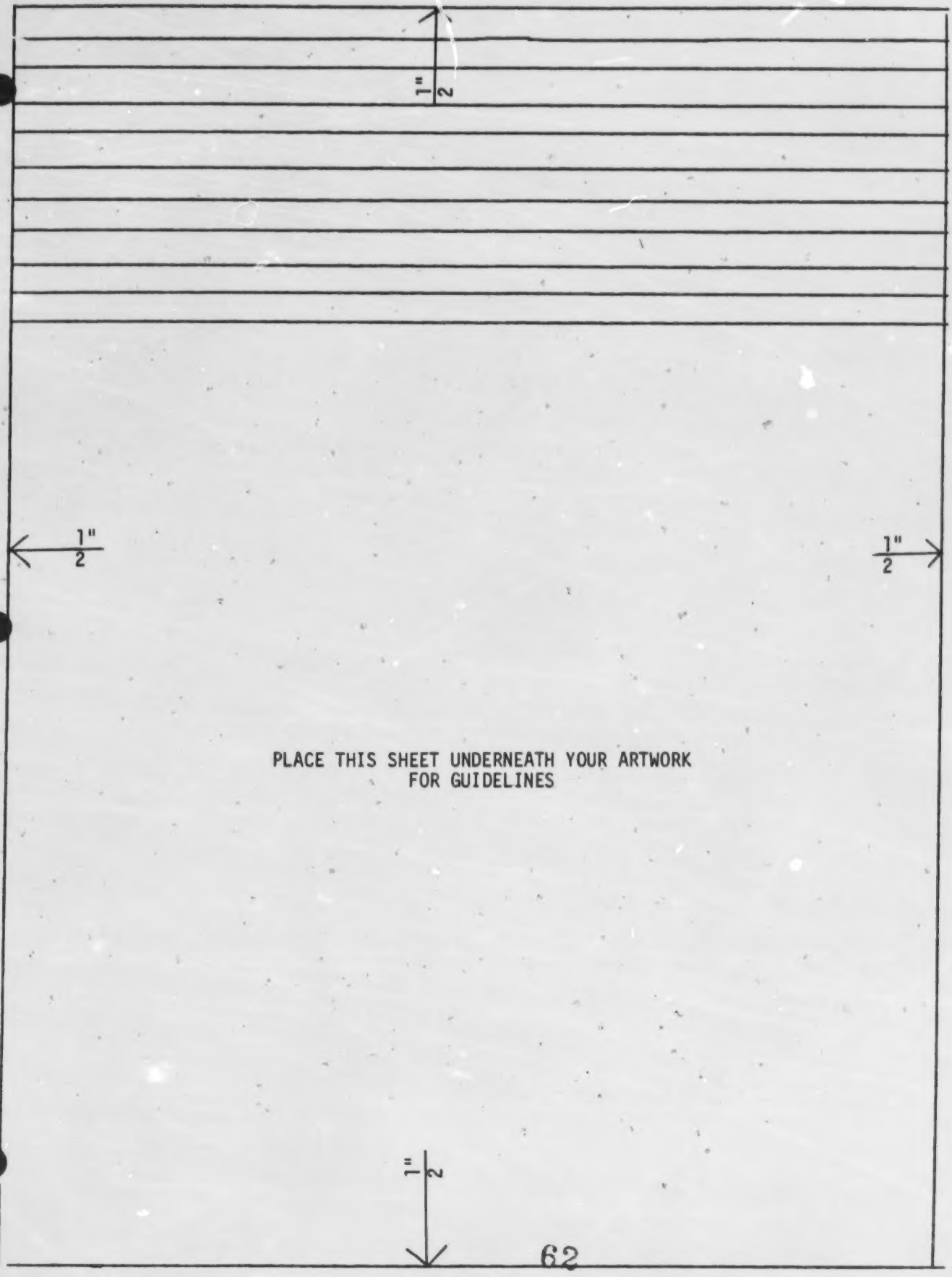
_____roman style type

_____script

_____gothic

_____serif

1. Resembles handwriting, thick and thin lines
2. Small finish strokes on body of letter
3. A unit measure of type size, this is equal to 1/6 of an inch
4. Refinement or improvement of a thumbnail sketch
5. Similar to Gothic, only with serifs
6. One-half of a pica, equals 1/12 of an inch
7. Quick, simple freehand sketch of an idea
8. A camera ready copy made with instruments. The final step prior to reproduction
9. Uses thick and thin strokes and many shaped serifs
10. Refinement of a rough layout
11. Slanted letters for emphasis
12. Sharp points and angular strokes, many features of Gothic architecture



PLACE THIS SHEET UNDERNEATH YOUR ARTWORK
FOR GUIDELINES

62

Source: Iowa Ind. Arts Handbook
Graphic Communications

TITLE: Design and Layout of a Letterhead

RATIONALE: This activity will enable you to exercise your knowledge of design in the practical application of a personalized letterhead. In addition to displaying your understanding of design, this activity will allow you to have a personal letterhead for your stationery needs.

PERFORMANCE OBJECTIVES:

After completion of this activity you will be able to:

1. Describe in writing the four steps in the layout preparation of a letterhead.
2. Design a letterhead using an acceptable letterhead arrangement.
3. Produce one copy ready letterhead.

PRE-ASSESSMENT:

If you can answer all of the three questions orally to the satisfaction of your instructor you may proceed directly to the enrichment activity.

1. What are the three ways you could letter the original camera ready copy for a letterhead?
2. How would a camera ready copy be transferred to a ditto master?
3. How could letterheads be mass produced?

LEARNING ACTIVITIES:

Materials, Equipment and Supplies:

3/4" masking tape
cellophane tape
rubber cement
8 1/2" x 11" bond paper
non-reproducing pencil
white correction fluid
felt tip pen
clip art copy
guide sheets
initial letters
decorative items
drawing surface
T-square
triangles
ruler

Enabling Information:

1. Take a piece of bond paper and place it on top of the ruled guide sheet.
2. Align and square the paper and guide sheet to the work surface using a T-square. Secure both sheets with masking tape.
3. Using a non-reproducing pencil, mark very lightly guidelines 1/2 inch from all four edges of the bond paper. Do not put marks to the outside of these border lines. (This is because most duplicators require 1/2 inch gripper margin to grasp the paper.
4. Now, if desired, you may select a symbol or border from one of the clip art sheets or any other available source such as newspapers, magazines or brochures. You may also create an original design.
5. Borders and rules may be added by using commercially marketed pressure sensitive tapes, individually designed creations or border and rule sheets.
6. For a personalized touch, your own handwriting may be incorporated by using a felt tip or technical drawing pen. If typing, be certain to check that the ribbon is good and types a sharp image.
7. You may also want to use transfer or pressure sensitive letters.
8. A Leroy lettering set may also be used to letter your letterhead.

EVALUATION:

Your completed letterhead will be evaluated by the instructor in the following areas:

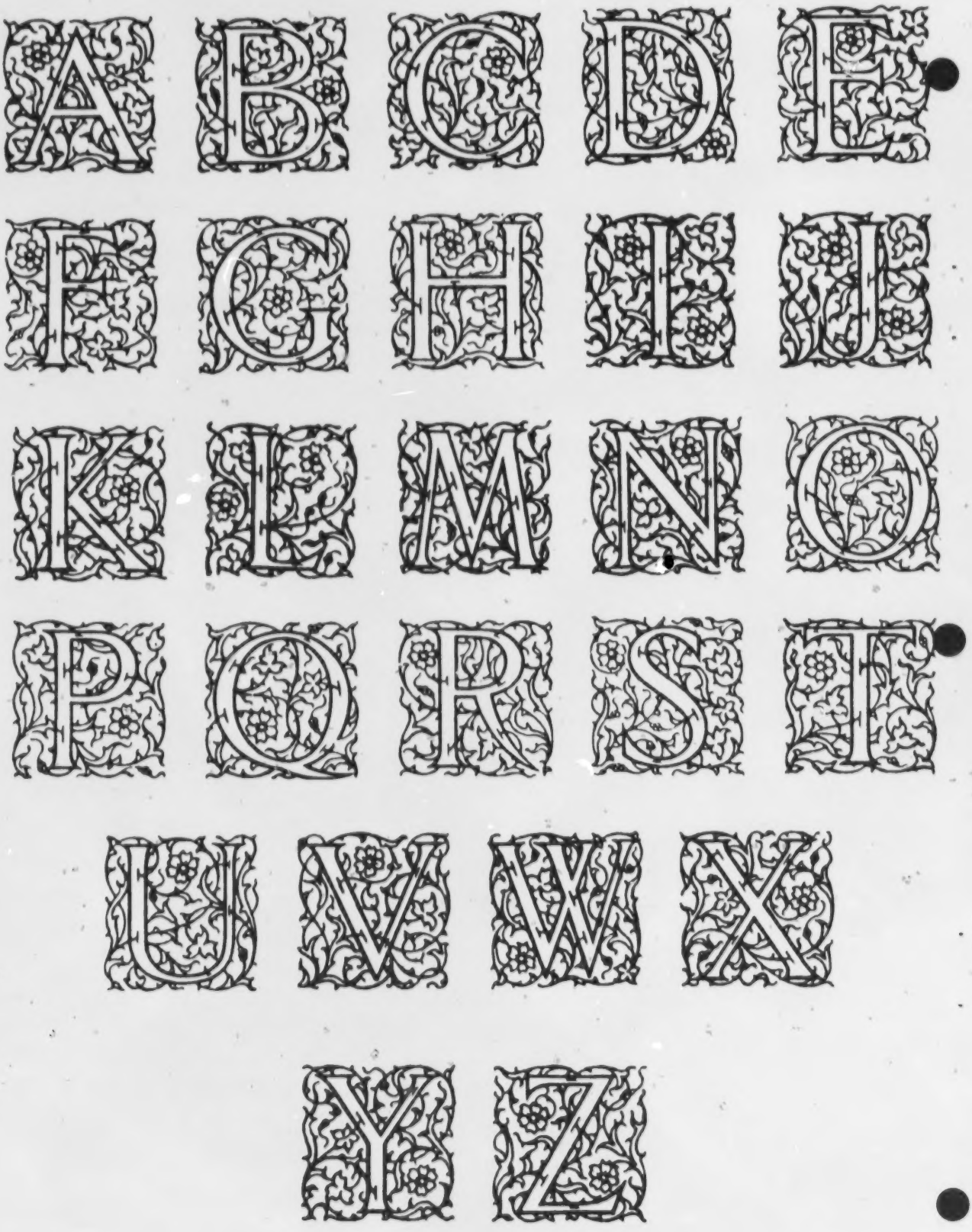
a. time and effort expended;
b. use of elements and principles;
c. creativity and originality; and
d. neatness.

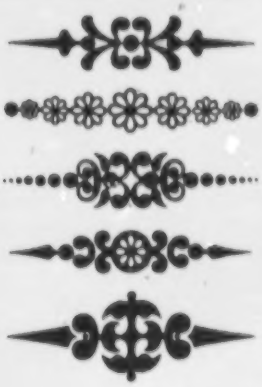
REFERENCES:

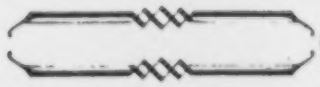
Printing Layout and Design. DelMar Publishers, Inc., New York, 1955.

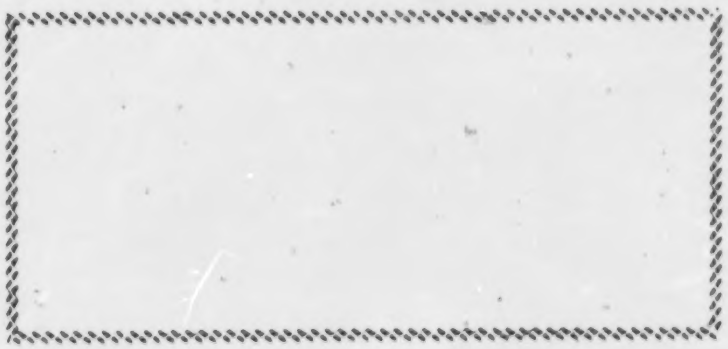
Basic Lessons in Printing Layout. Karch, R. Randolph, The Bruce Publishing Company, 1952.

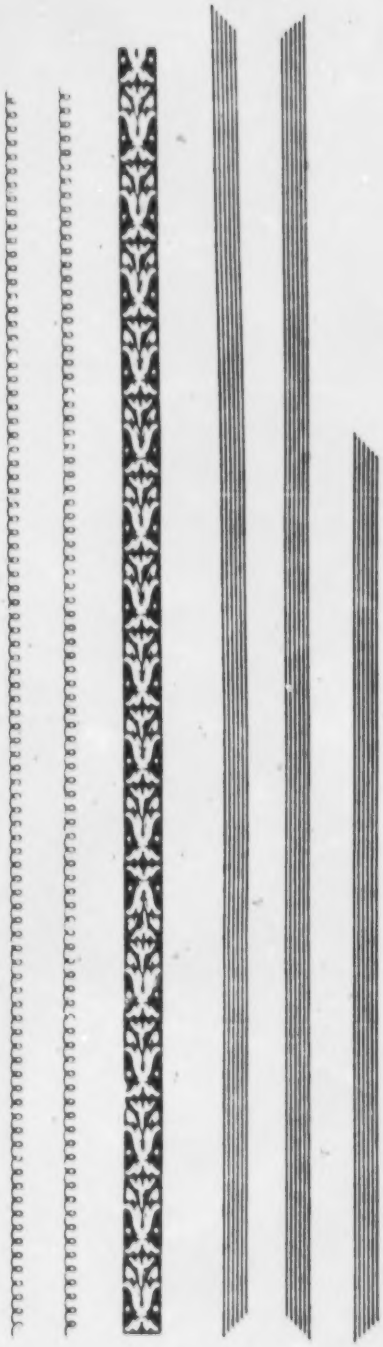
Graphic Communications Education Program, South Carolina Department of Education, 1974.


A B C D E
F G H I J
K L M N O
P Q R S T
U V W X
Y Z









FIBRE OPTICS

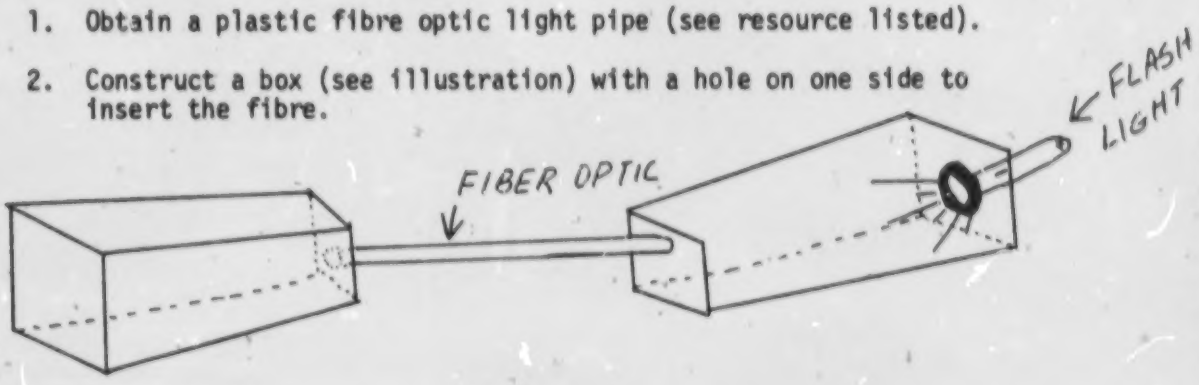
Very few activities have been developed that deal with this topic. A fibre optic kit including a coding and decoding system is available through Edmund Scientific Corporation. An inexpensive activity is suggested below:

OBJECTIVE: To provide the student with a basic understanding of the use of fibre optics as a communication medium.

ACTIVITY:

1. Obtain a plastic fibre optic light pipe (see resource listed).

2. Construct a box (see illustration) with a hole on one side to insert the fibre.



3. The student will need to design a code system using "blinking light" from the flash light. Once a code has been established, a sender will send a message via blinking light and the receiver will have to interpret (decode) the message. (A subdued light or dark area might be the best facility for this activity).

ALTERNATE ACTIVITY: The advantage of fibre optics, or at least one advantage, is its ability to bend. This trait allows one to direct the light source around corners for instance. If one could secure an approximate 10' length of fibre it would be possible to run it from one room to the next thus eliminating the need for the boxes.

SOURCES: Fibre Optic Light Pipe (2' lengths)
Send for: Fibre Optic Designer's Kit $3.95
Etco Electronics
North Country Shopping Center
Route 9 North
Plattsburgh, N.Y. 12901

Fibre Optic Kit, excoding and decoding system, transmitter, etc. -- Edmund Scientific Corporation
$165.00

ELECTRONIC

Source: Secondary Exploration of Technology Project

INDUSTRIAL COMMUNICATIONS CURRICULUM

ACTIVITY: Producing a Commercial *(Allow 5 class periods)*

OBJECTIVE: At the completion of this activity the student will know the procedures of producing the commercial, as evidenced by the commercial presentation.

EQUIPMENT AND SUPPLIES NEEDED: Video tape equipment or tape recorder

PROCEDURE FOR THE ACTIVITY

1. Teacher Information
   A. The purpose of this activity is to give the student the procedures and techniques of producing a commercial.

   B. Information to be presented
      1. The Video camera
      2. Lenses of the camera
      3. Audio and recording on camera
      4. Lighting
      5. Special effects
      6. Film and video tape recording
      7. The television studio and control centers
      8. Producing and directing

2. Teacher should demonstrate proper handling of the equipment

3. Student Activity
   A. Students are to produce and direct commercials. (Either with tape recorder or video tape recorder.)
      1. Set up staging and lighting
      2. Film title card
      3. Film commercial script
      4. Edit if needed

FOR EFFECTIVE COMMERCIALS—LIVE AND TAPE

DO	DON'T
In copy, speak the viewer's own language.	Don't talk too much and especially don't talk "advertisingese."
Concentrate on the picture side first & add the audio copy later.	Don't develop the words first. . . this is radio and print technique.
Use interesting staging, appropriate props and keep the pictures moving or changing with motivation.	Don't rely on announcer's sheer personal magnetism to hold audience even for one 60-second commercial.
Run through the pictures without the sound. Make the visual side tell a complete story. Strive for unusual and memorable graphics at all times.	Don't rely on the combination of radio-style copy and whatever pictorial sequences are at hand and easiest to use.
Try to involve viewers emotionally.	Don't create unrealistic situations and hope to convince.
Make the pictures tell the dominant portion of the story.	Don't write too much audio copy.
Use optical and electronic effects where possible in the tape commercial. Make it creatively interesting and technically right for production.	Don't write a "live commercial" and simply record it on tape.
Stress close-ups to make your message personal, vivid and more effective.	Don't wait more than a few establishing seconds before coming in close.
Identify in many ways—background sign-- or foreground sign--reveals--and supers with or without prices.	Don't rely on sponsor identification only at open and close.
Use situations, questions, dramatic statements by people, cartoons, etc.	Don't use printed headlines to arrest attention.
Keep the progression of ideas, pictures and sales points moving to your objective.	Don't use an unrelated opening or "stopper" merely to get attention.
Strive for extremely clear visuals.	Avoid cluttered backgrounds in pictures.

Source: Secondary Exploration of Technology Project

INDUSTRIAL COMMUNICATIONS CURRICULUM

ACTIVITY: Compiling Information *(Allow 5 class periods)*

OBJECTIVE: Upon completion of the activity on compiling information the student will have a knowledge and understanding of how to collect, select and outline materials as evidenced by the material collected and an outline presented to the instructor.

EQUIPMENT AND SUPPLIES NEEDED: Library facilities, pencil and paper

PROCEDURE FOR THE ACTIVITY

1. Teacher Information
   A. The purpose of this activity is to show the student how to go about gathering the information necessary to complete a printed copy.

   B. Key Points to be presented
      1. Trace the steps in getting information ready to prepare a paste-up.
      2. Emphasize the importance of the layout content (thus the need to compile the information).

   C. The teacher should provide examples of compiled information which is transferred into outline form.

2. Student Activity
   A. The student should decide on the main idea of the printed copy. (Just what it is that he wants to say in the copy.) Possibly a one page, consise, technical paper on some phase of communication could be assigned.

   B. The student should go to the library to continue research on how to go about getting the information to be printed.

   C. Possible resource methods for student use.
      1. Authority--to ask people who are an authority on subjects.
      2. Personal experience
      3. Deductive reasoning--taking general information to arrive at specific conclusions.
      4. Inductive reasoning--taking specific information to arrive at general conclusions.
      5. Scientific method--find all of the possible ways, choose a hypothesis experiment to prove it.

   D. After the student has compiled the necessary information he should prepare an outline. The outline should include:
      1. Stating the problem (the printed copy that you want.)
      2. Main segments of collected information
      3. Systematic arrangement of the information into a useable sequence.

   The information which the student has collected and outlined should be readied before the next activity "Layout/Composition" occurs.

DO	DON'T
Create mood and effect lighting to enhance the commercial.	Don't rely on flat lighting.
Let the camera show and demonstrate products.	Don't merely mention their benefits.
Prove selling features as you would in person.	Don't just point to the product and talk selling features.
Feature one major theme or item in a commercial.	Don't use television to list items as you do newspapers.
Create an interesting "intro" on film or tape with your own music theme.	Don't keep changing the opening of your commercial.

SAMPLE SCRIPT

Program THE USE OF THE DRILL PRESS Instructor _____

Producer _____ Director _____

Date _____ Time _____ Length _____

	Video		Audio
Shot #	Type	Composition	
1	W.S.	Pan across complete set showing talent and equipment to be used	This lesson #6 in this series Now let's take a look at the chuck
2	C.U.	Close shot of a chuck	The chuck Now let's look at its relationship to the rest of the machine.
3	M.S.	Entire drill press and instructor's hands	This particular chuck The table adjustable.
4	C.U.	Zoom in on Drill-Press Table	The table

SAMPLE T.V. SCRIPT WPBR NEWS CHANNEL 1

CAMERA POSITIONS	SCRIPT
Camera on letters. Zoom out and focus on Vicki, Theresa, and Kathy (MS)	Music (Theme)
Zoom in on Theresa (CU)	Welcome to WPBR NEWS. I'm Theresa Mularkey and heres what's happening on the national scene. Many Detroit youngsters were turned away from school and ended up in county clinics because they couldn't prove that they had had shots for many childhood diseases. Each year less children get immunized as a result these children are turned away from schools until they can prove the shots were given. Teenage unemployment is a growing problem in the U.S. today. Many groups and organizations are formed to try to help the millions of unemployed teens, but there are several barriers (1) Age, many employers don't think teenagers are old enough to handle some responsibilities. (2) Education, jobs such as running an elevator requires a high school diploma. (3) Child labor laws (4) Insurance and minumum wage laws and (5) Welfare regulations. All these barriers put together make it very diffucult for youths to get jobs. Alot of teenagers who can't get jobs go into things like, selling drugs, stealing, this is why many organizations feel it is important to get them good jobs, but can't keep up with the growing numbers of unemployed and feel that if more help is not given, the problem will get even worse. In Memphis Tenn., ten drugs were present in Elvis Presley's bloodstream when he died in August and they probably contributed to his death, a published report said Wednesday. The Commercial Appeal quoted sources as saying Dr. Jerry Francisco, Shelby county medical examiner, may rule multiple drugs as the cause of the singer's death.

Source: Westfield Guide

THE OLD AND THE SENILE

SAMPLE RADIO PRODUCTION SCRIPT

TIME: 5:00

B.G. MUSIC: YOUNG AND RESTLESS

Narrater: Join us now for the continuing episode of the OLD AND THE SENILE. Brought to you by the makers of Geritol.

FADE MUSIC

B.G. MUSIC: HEATHER

COMMERCIAL: Take a look at someone who takes Geritol. With 4 children, a job, being president of the PTA, and yet you never slow down. Tell me now how do you do it?
Well, I eat right, exercise, and take Geritol every morning.
My wife, I think I'll keep her.

FADE MUSIC

STATION INDENTIFICATION: WHS-The only station in Westified, WI. 1980 on your dial.

Myrtle: Oh, Louise I'm losing Orville to that hussy of a young nurse, Virginia. What a name for such a girl!!

Louise: Oh, Myrtle by george I think I've got it. Last month in Cosmopolitian, I saw this article on a catalog that has all kinds of interesting outfits. I think they call it Fredericks. That'll put a spark in his furnace.

Myrtle: But Louise, I weigh 350 lbs. You know what I would look like in one of those sleazy things.

Louise: Well, then we'll take you to one of those Fair Lady Spas and melt those extra pounds away.

Myrtle: But Louise, you know how long that would take. By then Orville would have caught up with that Virginia!

Louise: We'll send you to one of those speedy sessions and then you'll have to fight him off with a whip.

Myrtle: Oh Louise, you've solved all my problems. I'll go and sign up right now.

B.G. MUSIC: YOUNG AND RESTLESS

FADE MUSIC

S.E. RUNNING

Orville: Slow down Sweetie!!

Nurse: Mr. Weber control yourself. You're a married man!

Orville: So what you're not.

S.E. SCREAM

Orville: I got you now.

S.E. DRESS RIP

Source: Westfield Guide

COMMUNICATIONS ACTIVITY
(Electronic - Radio)

OBJECTIVES: Upon completion of this activity, the student will be able to:

1. Explain how information can be transmitted over a considerable distance without the use of connecting wires.

2. Relate the major components of a radio system to the communications model.

3. Explain how a receiver's directional characteristics can be used to locate a hidden transmitter.

EQUIPMENT:

1 each - Transmitter, portable "walkie-talkie" modified so the microphone input is replaced with an audio oscillator.

1 each - Receiver (to match transmitter's frequency) for each group of students.

Note: This activity can take place within a 5-mile radius of school using a licensed amateur radio operator as a "consultant" or "in school" using a low power (100 milliwatt) transmitter on the regular AM or FM broadcast bands. The FCC permits transmitting without a license if the power output of the transmitter is less than .1 watts.

PROCEDURE:

1. Explain, using whatever aids available, the concepts associated with radio:

   a. Distance limits to audio waves.
   b. Maximum frequency the human ear can hear.
   c. The process of modulating a carrier wave.
      (1) The assigned frequency (channel) of the carrier.
      (2) The audio wave mixed with carrier wave as an electromagnetic wave which is modulated. (AM - Amplitude Modulated or FM - Frequency Modulated)
   d. The propagation of the radio wave; need for antenna, ground wave, sky wave, interference, power, and FCC regulations.
   e. Receiving a radio wave:
      (1) Antenna - Turner to select desired signal.
      (2) Demodulation (detector)
      (3) Audio amplifier
      (4) Transducer to change electricity to acoustic waves.

2. Conduct the transmitter hunt:

   a. Explain the rules - time, distance traveled, etc.
   b. Have students tune in and listen to the signal to be received. Also, check directional characteristics of their receivers.
   c. Hide the transmitter.
   d. Have students locate the transmitter using time (or time and distance traveled if in car) to determine the winner. Note: If the entire class is sent out to hunt the transmitter in six or eight small groups, there may be too much disturbance in the school. You may wish to send only 3 groups of 3 students at a time.

3. Award prize and discuss how direction finding equipment could be used in practical situations:

   a. Marine and aviation navigation.
   b. Locating a ship in trouble (or lost).
   c. Locating an illegal transmitter (security).
   d. F.C.C. locating someone violating the rules.
   e. Wildlife management (attaching microminiature transmitter to large animals).
   f. Others?

RESOURCES:

1. Radio Theory:

   a. American Radio Relay League (ARRL) publications such as The Radio Amateur's License Manual, The Radio Amateur's Handbook, for the beginner Understanding Amateur Radio, or for the young beginner "Tune in the World with Ham Radio". ARRL publications are available from Newington, Connecticut 06111 or a local radio store.
   b. Radio Shack publications. Check with local store.
   c. Standard publications. Check with private publishers.
   d. Radio merit badge book for Boy Scouts of America. Check local council.

2. Radio Practice:

   a. Amateur radio operators in your locality.
   b. Commercial radio technician at local radio or T.V. station.
   c. Local radio repair facility.

SUGGESTED ACTIVITIES: Radio

1. Participate in one of the Worldwide or National Amateur Radio contests.

2. Collect at least 5 amateur call cards as a Short Wave Listener (SWL).

3. Record off the air at least one station in each of the following bands:

   a. AM broadcast 550-1630 KHz
   b. FM broadcast 88-108 MHz
   c. VHF TV Sound 66-213 MHz
   d. UHF TV Sound 480-800 MHz
   e. Public Service - Fire, Police, Weather Alert, Aircraft, etc.
   f. Amateur S.W. High Frequency 2-30MHz
   g. Amateur S.W. VHF 144-148 MHz
   h. WWV National Time Signal 2.5, 5.0, 10.0, 15.0, 20.0 MHz or
   i. Other communications of your choice with your instructor's permission.

4. Arrange with an amateur to transmit and receive long distance communications. Record your message.

5. Attend at least 2 amateur radio club meetings. Report on your experience.

6. Listen to a series of conversations over Citizen's Band Radio, then amateur band radio. Contrast the two transmissions as to operating procedure, ethical conduct, quality of signal, and mode of transmission (AM-FM-SSB, etc.)

7. Complete the Boy Scout Requirements for obtaining a Radio merit badge.

8. Qualify for an FCC Novice License or higher.

9. Participate in an organized transmitter hunt. Amateur radio group, if not licensed, use 100 milliwatt transmitter and portable receiver - AM or FM bands.

COMMUNICATIONS ACTIVITY
Electronics - Wired System

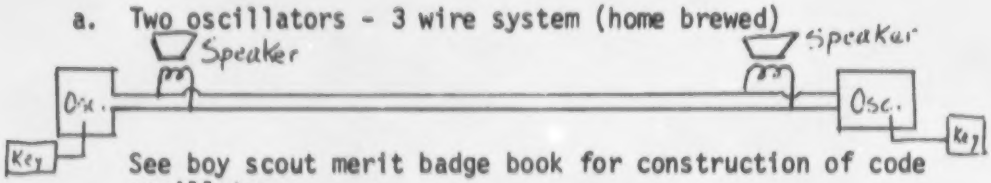
OBJECTIVES:

Upon completion of this activity, the student will be able to:

1. Explain how information can be transmitted with pulse techniques over wired systems.
2. Connect and operate a wired intercommunication system.
3. Explain the system being used in terms of the communications model.
4. List the advantages and limitations to the system used.

PROCEDURE:

1. Acquaint the students with a code system. The International Morse Code is a universal model and can be used as is or have the students develop their own code. A second, but more complex, system is that used for teletype. Encourage the students to develop their own code system.
2. Explain the wired system available for use in sending and receiving the coded messages:
   a. Two oscillators - 3 wire system (home brewed)



   See boy scout merit badge book for construction of code oscillator.

   b. Two-way intercom available from local radio outlet like Radio Shack. Run necessary wires for hook up.

   c. Two-way intercom "carrier current" type that uses the 60 cycle power lines as the wires for interconnection of stations. Available from radio stores and/or department stores.

3. Have students send and receive a message.
   a. Interconnect components of the system.
   b. Challenge each other on receiving Morse code or "breaking" a student designed code.

RESOURCES:

1. Radio Theory:

   a. American Radio Relay League (ARRL) publications such as The Radio Amateur's License Manual, The Radio Amateur's Handbook, for the beginner Understanding Amateur Radio, or for the young beginner "Tune in the World with Ham Radio". ARRL publications are available from Newington, Connecticut 06111 or a local radio store.
   b. Radio Shack publications. Check with local store.
   c. Standard publications. Check with private publishers.
   d. Radio merit badge book for Boy Scouts of America. Check local council.

2. Radio Practice:

   a. Amateur radio operators in your locality.
   b. Commercial radio technician at local radio or T.V. station.
   c. Local radio repair facility.

OTHER

INDUSTRIAL COMMUNICATION
(Visual)

Name _____

Date _____

GESTURES

OBJECTIVE: Gain an understanding of non-verbal communication (audio) as a method of communication.

RESOURCES:

I. Teacher student discussion

II. Examples

ACTIVITY:

I. Teacher-directed discussion of non-verbal communication (audio)

A. Body language

1. Rejection (pull back)

a. Frown
b. Retreat
c. Shake head side to side
d. Turn away

2. Acceptance

a. Attack (come forward)
b. Smile
c. Nod (auction)

SOURCE: Shawano Curriculum Project

INDUSTRIAL COMMUNICATION
(Other Sensory)

Name _____

Date _____

HEARING

OBJECTIVE: Gain an understanding of hearing as a method of communication.

RESOURCES:

I. Teacher-student discussion

II. Examples

ACTIVITY:

I. Teacher-directed discussion of other sensory communication (hearing)

A. Warning Devices

1. Sirens, bells and horns

2. Rattlesnake

B. Ways of Sending Messages

1. Bells in department store

2. Duck call

3. Federal agencies use special codes

SOURCE: Shawano Curriculum Project

INDUSTRIAL COMMUNICATION
(Other Sensory)

Name _____

Date _____

SMELL

OBJECTIVE: Gain an understanding of smell as a method of communication.

RESOURCE:

I. Teacher-student discussion

II. Sample products

ACTIVITY:

I. Teacher-directed discussion of other sensory communication (smell)

A. Man-made Odors

1. Positive odors

a. Room deodorizers
(lilac)
(roses)
b. Perfume, cologne
c. Magazine
d. T-shirt
e. Lemon Freshener

2. Negative Odors

a. Insect repellant
(negative to bugs)
b. Natural Gas
(odor additives are added to warn of danger)

B. Natural Odors

1. Odor associated with danger

a. Smoke
b. Gas
c. Skunk

SOURCE: Shawano Curriculum Project

INDUSTRIAL COMMUNICATION
(Other Sensory)

Name _____

Date _____

TOUCH

OBJECTIVE: Gain an understanding of touch as a method of communication.

RESOURCES:

I. Teacher-student discussion

II. Sample products

ACTIVITY:

I. Teacher-directed discussion of other sensory communication (touch)

A. Handshake

1. Strong - Dominant figure

2. Weak -

B. Selling technique

1. Products one buys

a. mail order clothing
b. paper (printing stock)

C. Reading

1. Braille

SOURCE: Shawano Curriculum Project

INDUSTRIAL COMMUNICATION
(Other Sensory)

Name _____

Date _____

TASTE

OBJECTIVE: Gain an understanding of taste as a method of communication.

RESOURCES:

I. Teacher-student discussion

II. Examples

ACTIVITY:

I. Teacher-directed discussion of other sensory communication (taste)

A. Man-made Taste

1. Kool-aid

2. Soda

3. Soybean burgers

B. Natural Taste

1. Fruit juice

2. Beef

C. Unpleasant Taste

1. Product that makes a person want to stop smoking

D. Pleasant Taste

1. Medicine for children

2. Menthol

SOURCE: Shawano Curriculum Project

CAREER - EDUCATION

CAREER EXPLORATORY ACTIVITY

(This example is photography - could be any communications area)

All semester long, we've been talking about photography. For this assignment you will work in groups of 2 or less. You will explore the various job opportunities in the area of photography (substitute chosen area). You will interview a person that has a job related to photography (area chosen). Here are some ideas as to who to visit. Also remember that there are lots of occupations that use photography in their everyday work as well as those who make their living from photography. Here is a list that you might choose from:

INSURANCE AGENT
PROFESSIONAL PHOTOGRAPHER
POLICE OFFICERS
DOCTORS
LAWYERS
REPORTERS
SURVEYORS
REALTORS
RELATED FIELDS
-photo distributers
-sales clerks (camera stores)
-retouchers
-photo printers
FOREST RANGERS
PICK SOMEONE OF YOUR CHOICE
YOU COULD ALSO CHECK THE "DIRECTORY OF OCCUPATIONS"

Pick the person that you would like to interview and go get it approved by your instructor. If it is NOT APPROVED, there will be no grade given for the work, so be sure that it is approved.

Now you must get going on this assignment. First check with the library and find out all you can about the job that you are investigating.

- Find a person in the community (if possible) that has the job that you wish to check out.
- Call that person and explain that you are from _____ High School and that you are working on an assignment for your _____ class. Ask if they use photography in their job. If they do, ask if you can set up an interview.

- Next is the interview itself. Here are some questions that could be asked during the interview.

1. What are the hours worked?
2. What is the beginning wage?
3. What is the top salary that could be reached?
4. What training is needed (in regards to area)?
5. What are at least 4 advantages of photography in this job?
6. What are at least 4 disadvantages of photography in this job?
7. Does the company pay for equipment or is the cost encumbered by the user?
8. Where is processing done (self or sent out)?
9. What is the number of cameras desirable?
10. Is photography used everyday or occasionally?
11. Is photography an important part of your job?
12. You might ask if they have had any interesting situations when taking photos.
13. Because they use photography at work, do they have a greater interest in it as a hobby photographer?

These are only some questions that you might ask. I would hope that as you are talking you come up with some more to ask. Be sure that you write down all the information (or record it). ASK IF YOU MAY COME BACK LATER TO TAKE SLIDES OF THEM USING PHOTOGRAPHY IN THEIR JOB. IF SO, SET UP A TIME. (ACTION SHOTS)

Now that all the leg work is completed (most of it), the report should be organized. The information that you found in the library will be first. The next section will be the interview and the information that you have found in the community.

- After all your information is gathered and organized, write the rough copy. When it is the way you want it, write it up neatly. All spelling must be correct. Along with this report, turn in any extra material you received.

You will be graded on the following:

CREATIVITY	25 pts.
NEATNESS	25 pts.
ACCURACY	25 pts.
SPELLING	25 pts.
TOTAL	100 pts.

If you have any other suggestions on break down of points, let me know.

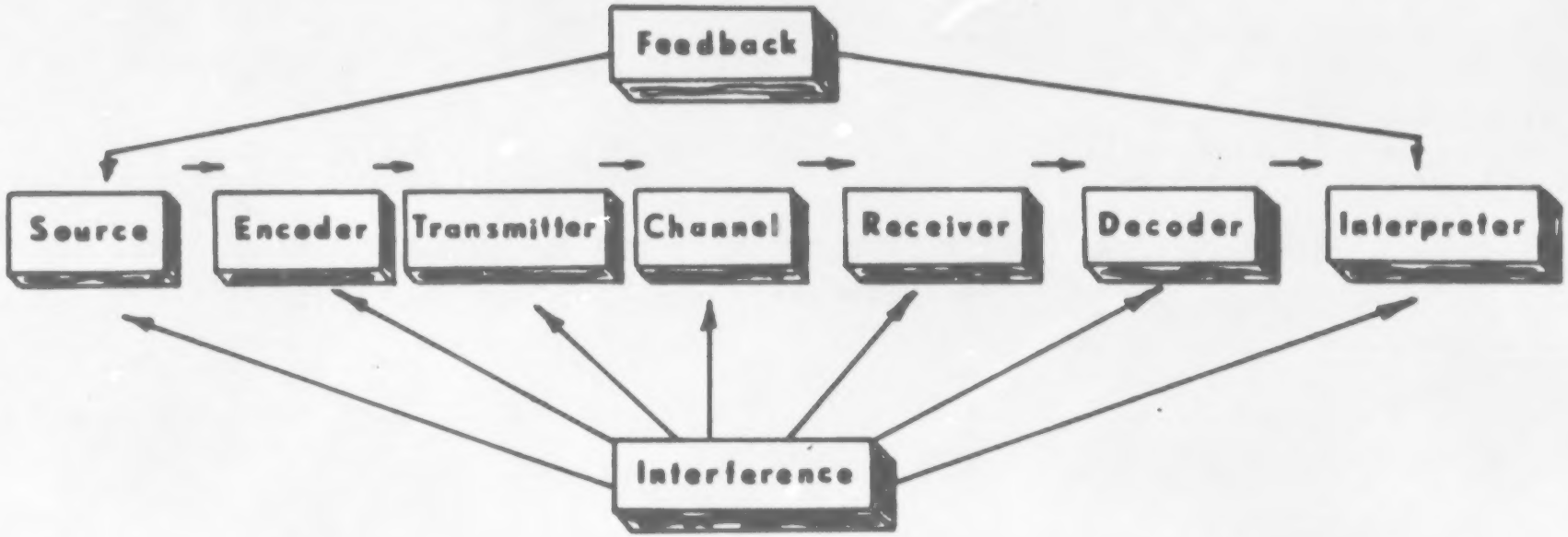
You may decide as a whole class how you want this assignment graded.

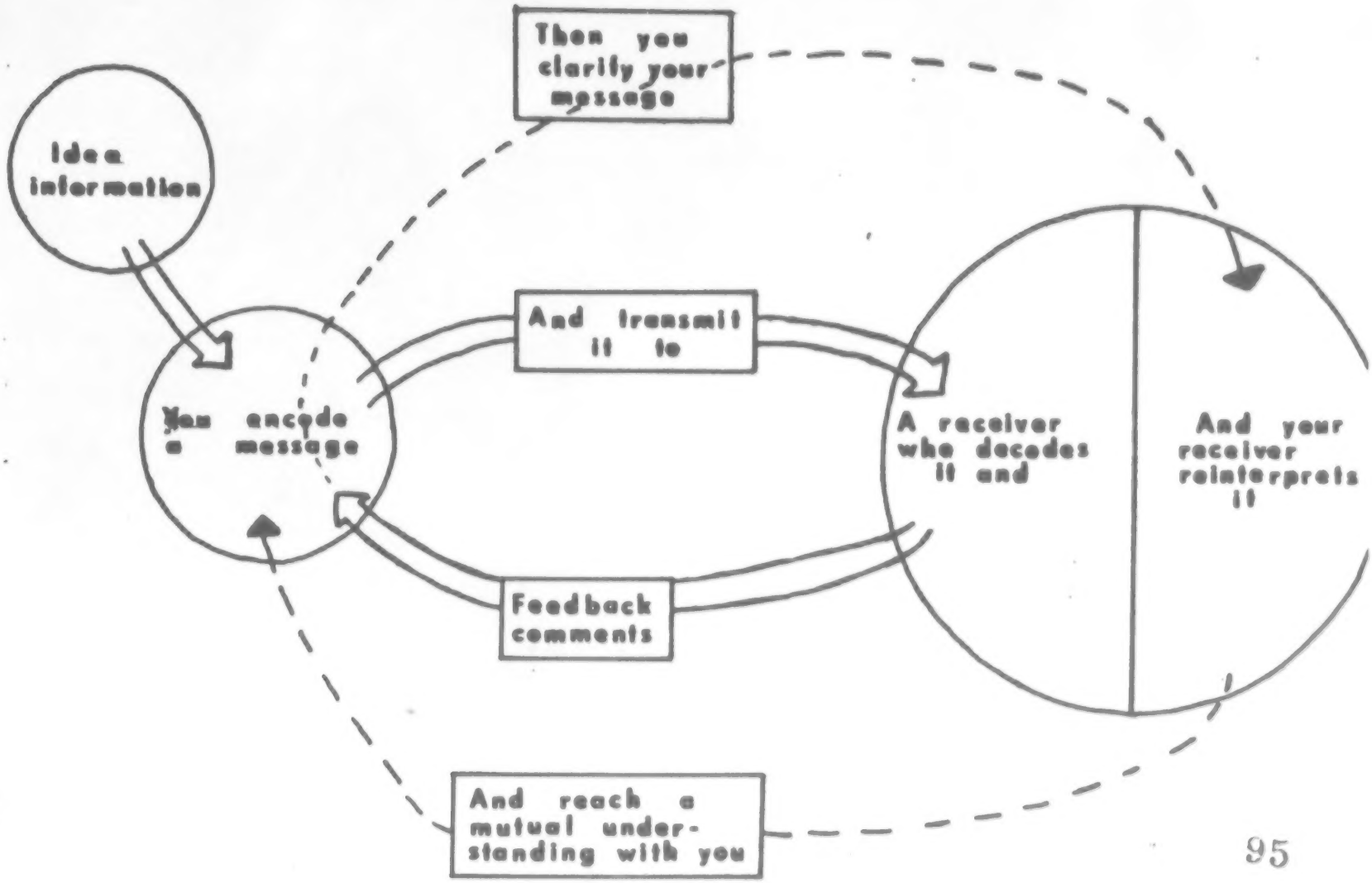
SUGGESTED ACTIVITIES

This list contains other ideas which do not have criteria, etc., written. Some may be able to be plugged into an activity listed prior to this, others may not. It is best to take these ideas or others you may have and write the objectives and procedures to fit your needs.

- Rewrite a TV game show; i.e., Gong Show, Dating Game, Family Feud. (video tape, TV)
- Write and record a radio program; i.e., like Lone Ranger, Amos and Andy. (Recording)
- Do a short play as audio visual activity.
- Produce a radio or TV news cast.
- Do a school P.A. radio station. Possibly run during a lunch hour. (Radio, Electronics)
- Visit a radio station and have a "student broadcast day" possibly from sign on until noon or for a few hours.
- "Shadow" a person in a career in communications.
- Produce a show for a local cable educational channel. Could be a public interest program on school activities.
- Plan and build a telegraph installation.
- Produce a short audiovisual program; i.e., a career interview on sound-slide.

TOTAL COMMUNICATIVE PROCESS



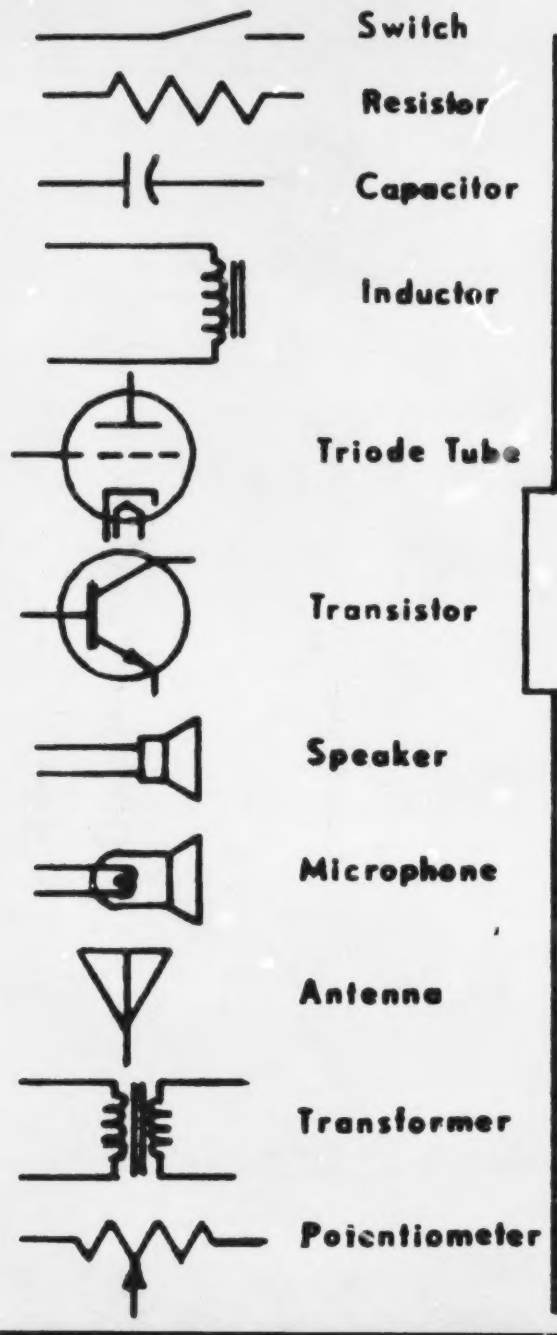

Then you clarify your message
Idea information
And transmit it to
You encode a message
A receiver who decodes it and
And your receiver reinterprets it
Feedback comments
And reach a mutual understanding with you

94

95

TWO WAY COMMUNICATION

ELECTRONIC COMMUNICATION



Oscillators

Rectifiers

Amplifiers

Filters

Transmitters

Receivers

Mixer / Converter

Hi-Fi

Radio

Teletype (auto)

Television

Radar

Facsimile

Telephone

Telegraph

SCIENCE
AND YOUR
TELEPHONE

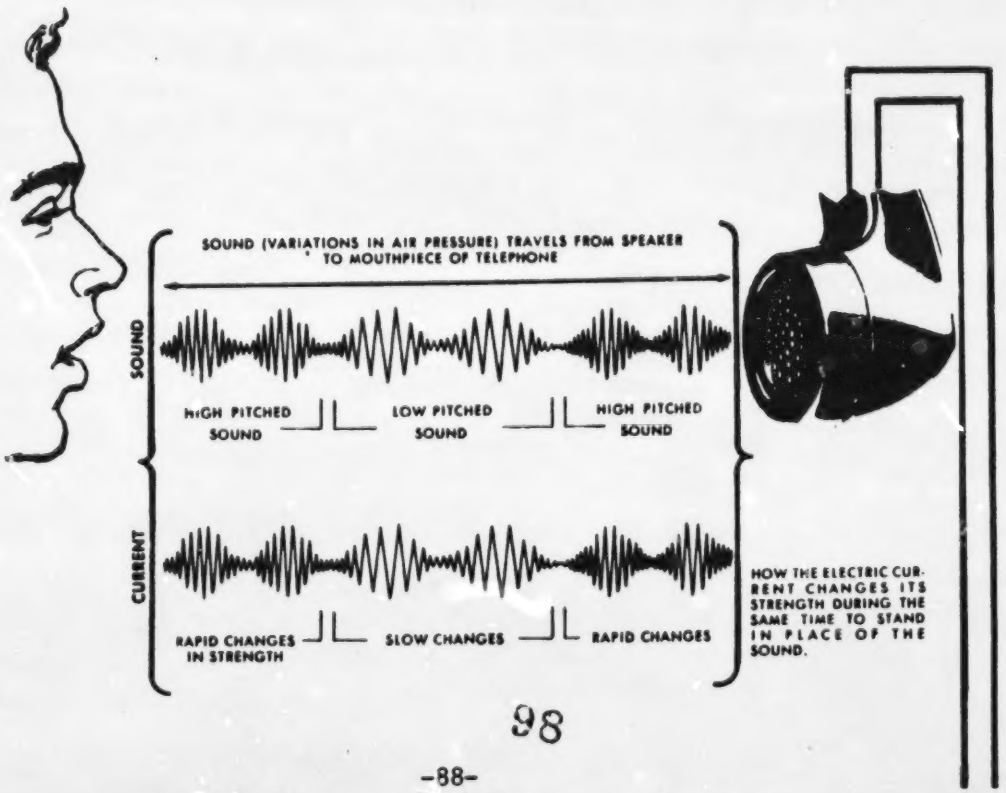
Vocabulary: Vibration
Efficiently
Infinitesimal
Electrons
Transmitter
Electron

When you talk over the telephone, something travels over the wire. But what? Voice sounds themselves do NOT travel over the wire. Sound travels at a fairly slow speed and can be heard only at relatively short distances. It can be made to follow a wire, but not very efficiently.

Electricity, on the other hand, is very happy with wire travel, moves at high speed, and can be strengthened along the way.

Just how can electrical currents be made to represent sounds? It's true electricity and sound are very different. Electricity is the motion of infinitesimal particles of matter-electrons-while sound is a vibration of the air particles as detected by the ear.

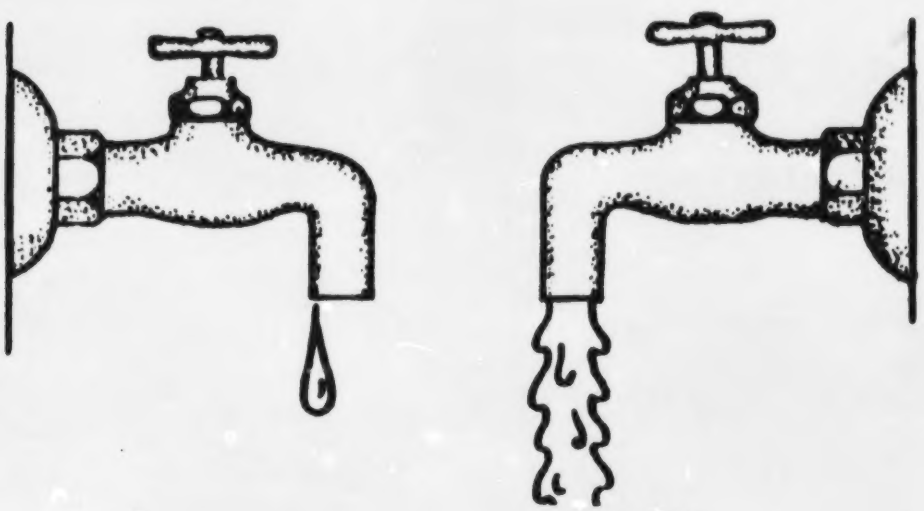
In poster #1, the blue lines show the pattern brought about by charges in the electrical current as one speaks TEL E PHONE into the transmitter.


SOUND (VARIATIONS IN AIR PRESSURE) TRAVELS FROM SPEAKER TO MOUTHPIECE OF TELEPHONE
SOUND
HIGH PITCHED SOUND
LOW PITCHED SOUND
HIGH PITCHED SOUND
CURRENT
RAPID CHANGES IN STRENGTH
SLOW CHANGES
RAPID CHANGES
HOW THE ELECTRIC CURRENT CHANGES ITS STRENGTH DURING THE SAME TIME TO STAND IN PLACE OF THE SOUND.

A SIMPLE
TELEPHONE CIRCUIT

Vocabulary: Energized
Valve
Diaphragm
Ingenious

Electrons are tiny particles of electricity. Electrons are everywhere - - in the air we breathe, our clothes and the chairs we sit on. Electrons are in the windings of the magnetic coils and in the wires connecting telephone instruments. By connecting the instruments to a dry cell battery, the electrons are energized or put in motion. Electrons move out of the battery, around the windings of the magnets in the telephones and back to the battery. We control the flow of electrons just as we control the amount of water flowing through a pipe, by means of some sort of valve.



The telephone transmitter is such a "valve". It changes the steady march of electrons into a dance or vibration. This dance of the electrons must be exactly the same as the dance of the molecules of air against the diaphragm of the transmitter.

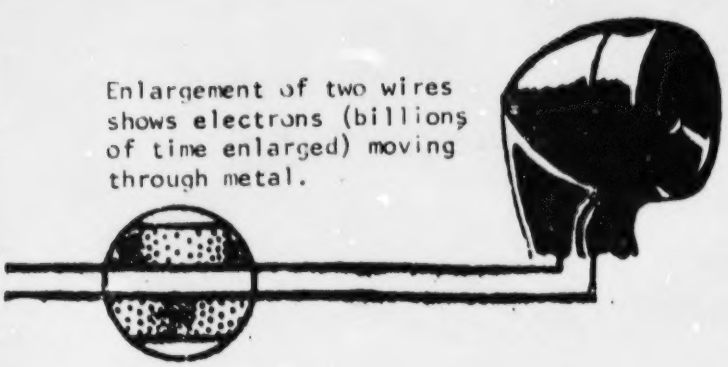
Did you ever think of a telephone call as one of the world's most ingenious tricks of imitation? We pointed out the voice you hear in the receiver of your telephone is NOT the voice at the talking end, but a similar sound produced electrically in the receiver next to your ear.

SOUND WAVES

Vocabulary: Molecule
Membrane
Frequency
Relationship
Replica

The motion you give to molecules of air when you speak is not like that of the wind where many air molecules sweep along. In a spoken word, or in any musical sound, the molecules dance back and forth. First they advance, pushing against the eardrum, and then they retire and the ear springs back. The higher pitched the voice of the speaker the higher the frequency and the more rapid is the dance.

But electrons can "vibrate" too - their flow along a wire can vary repeatedly. So if we have an instrument that produces electrical currents that vibrate at the same rates as a particular set of sound vibrations, then we have set up a relationship between sound and electrical currents.



Enlargement of two wires shows electrons (billions of time enlarged) moving through metal.

Sound produced by receiver has same pattern as original sound.

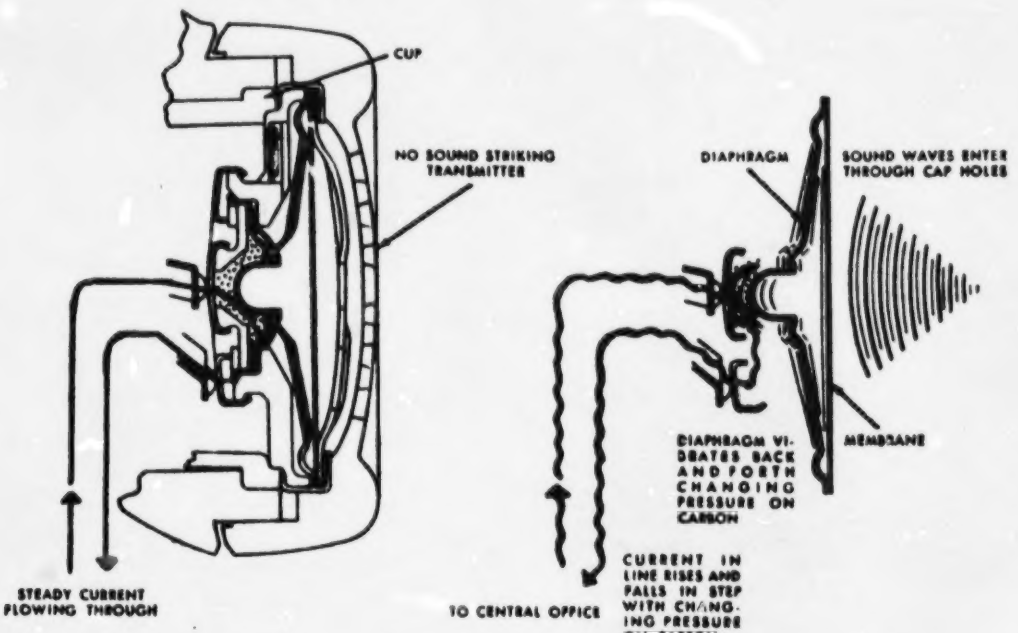
This is what the telephone instrument does. The transmitter sends out electrical currents that vibrate whenever sounds strike the transmitter. These electrical currents have the same rates of vibration as the sounds. The receiver dies exactly the opposite. It produces SOUND WAVES that vibrate the same number of times per second as the electrical currents that it receives. By linking transmitter to receiver, we have a change from sound to electricity and back to sound.

It is important to remember the sound you hear over the telephone is NOT the sound spoken at the transmitter. It's an entirely new sound recreated in the receiver by electricity. This new sound is a replica or imitation of the original words spoken into the transmitter.

TRANSMITTER

Vocabulary: Transmitter
Diaphragm
Carbon Granules

The telephone transmitter is a sensitive electric ear. Fastened to the back of its eardrum (diaphragm) is a chamber filled with an exactly measured quantity of carbon granules - grains of roasted coal. Through this carbon chamber and the connecting wires a battery sends an electric current.


CUP
NO SOUND STRIKING TRANSMITTER
STEADY CURRENT FLOWING THROUGH
TO CENTRAL OFFICE
DIAPHRAGM
SOUND WAVES ENTER THROUGH CAP HOLES
DIAPHRAGM VIBRATES BACK AND FORTH CHANGING PRESSURE ON CARBON
MEMBRANE
CURRENT IN LINE RISES AND FALLS IN STEP WITH CHANGING PRESSURE ON CARBON

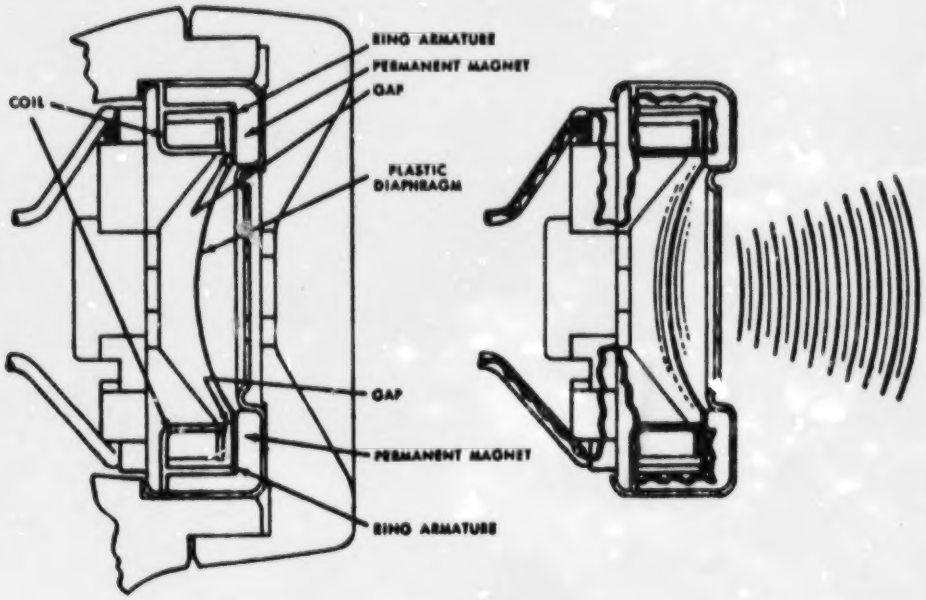
B When the handset is lifted, but before sound strikes the transmitter, steady current from the central office flows through the transmitter like this—

C When sound strikes the diaphragm, here's what happens to the current—

The steady flow of current through the transmitter carries no conversation. It has no CHANGE OF VIBRATION. When you talk, sound enters the holes in the outer cap. The membrane moves in step with the sound, passing the vibration on inside to the diaphragm. The diaphragm then moves back and forth the same number of times per second as the sound vibrations, squeezing the carbon grains a little tighter each time it moves in and relieving the pressure a little each time it moves out. When the grains are more tightly packed together by the inward moving diaphragm, more current can flow. When the diaphragm moves out and the grains loosen a bit, less current flows. Thus the variation in the flow of the current is closely in step with the sound of your voice.

RECEIVER

Vocabulary: Reversed
Magnet



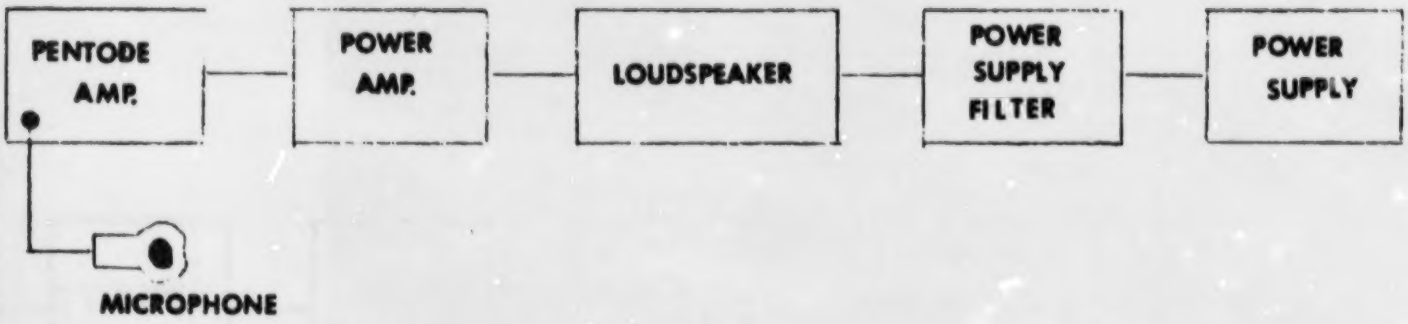
With no current reaching receiver, magnetism flows through as shown here—

When a varying electric current flows in the coil, here is what happens to the magnetic force, the diaphragm, and the air next to the receiver—

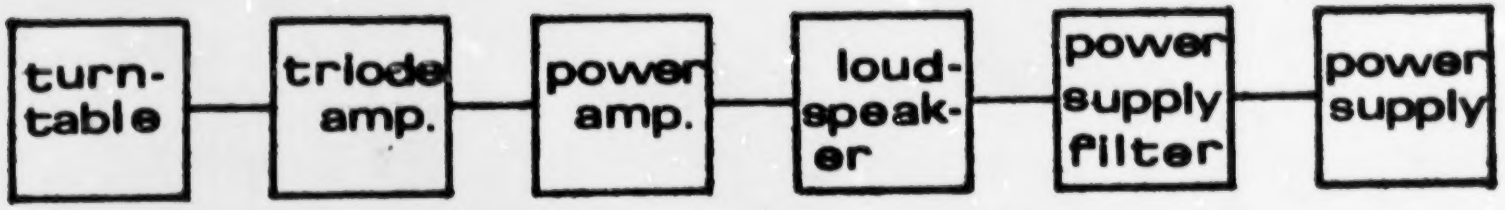
Varying electrical currents go dancing along the telephone wire until they reach the receiver at the other end of the telephone hook-up. Now the problem is reversed. How can this electrical energy be transformed back into speech sounds?

Just as the transmitter has been described as an electric ear, so the receiver may be termed an electric mouth which can utter human sounds. There is a magnet so arranged that it exerts a force of attraction on a thin iron diaphragm. Around the magnet is a winding of many turns of insulated wire through which pass varying currents from the telephone line. The magnet attracts the iron diaphragm, bowing it slightly toward itself. The stronger the magnet pulls, the more the iron bows toward it. If the pull decreases the iron flies back, like the bottom of a pan which you are bending with your fingers.

The motion of the receiver diaphragm is the same as that of the diaphragm of the distant transmitter. And the air molecules near the receiver are set into the same kind of motion as those that danced against the transmitter diaphragm. That is why the receiver speaks, reversing the magic that turned a spoken word into an irregular procession of dancing electrons.



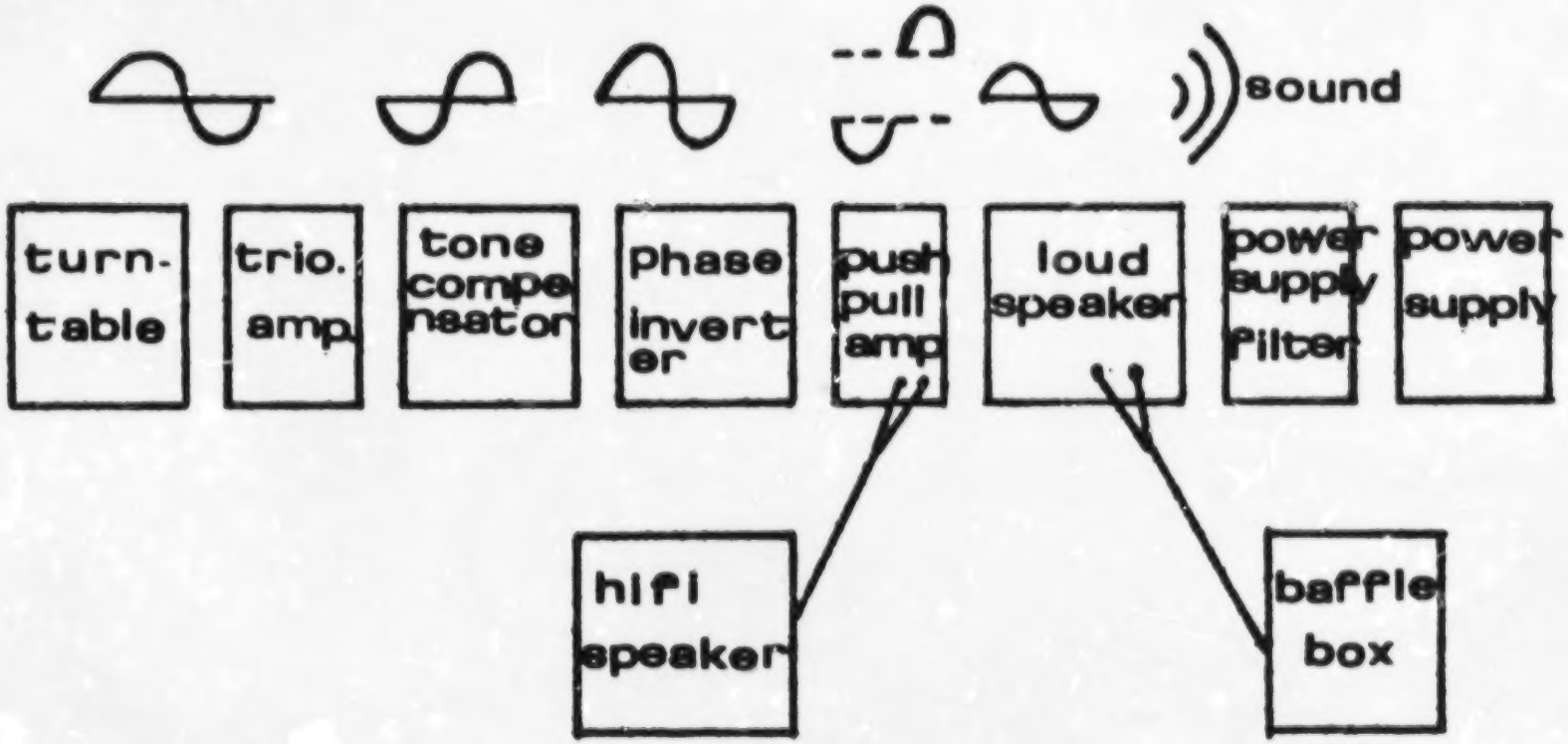
PUBLIC ADDRESS SYSTEM



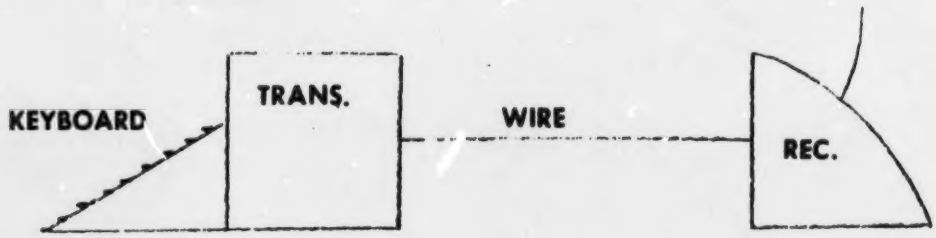
RECORD PLAYER

104

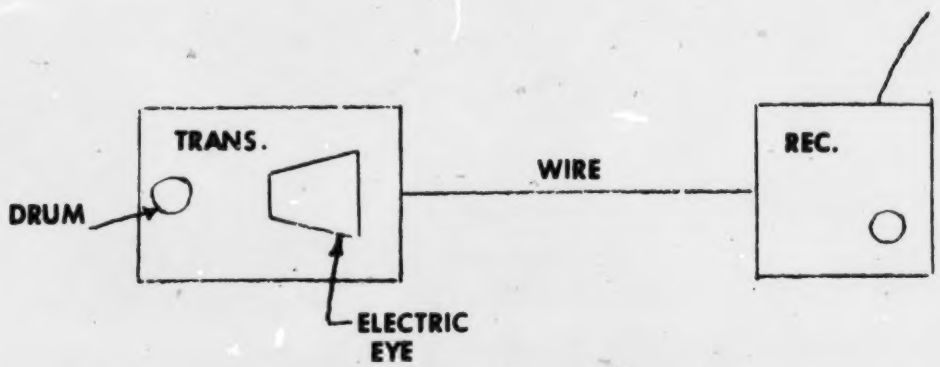
105



106 HIFI SYSTEM 107

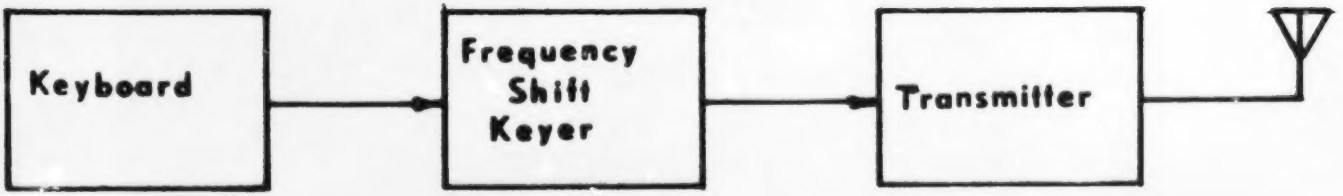


WIRE TELETYPE

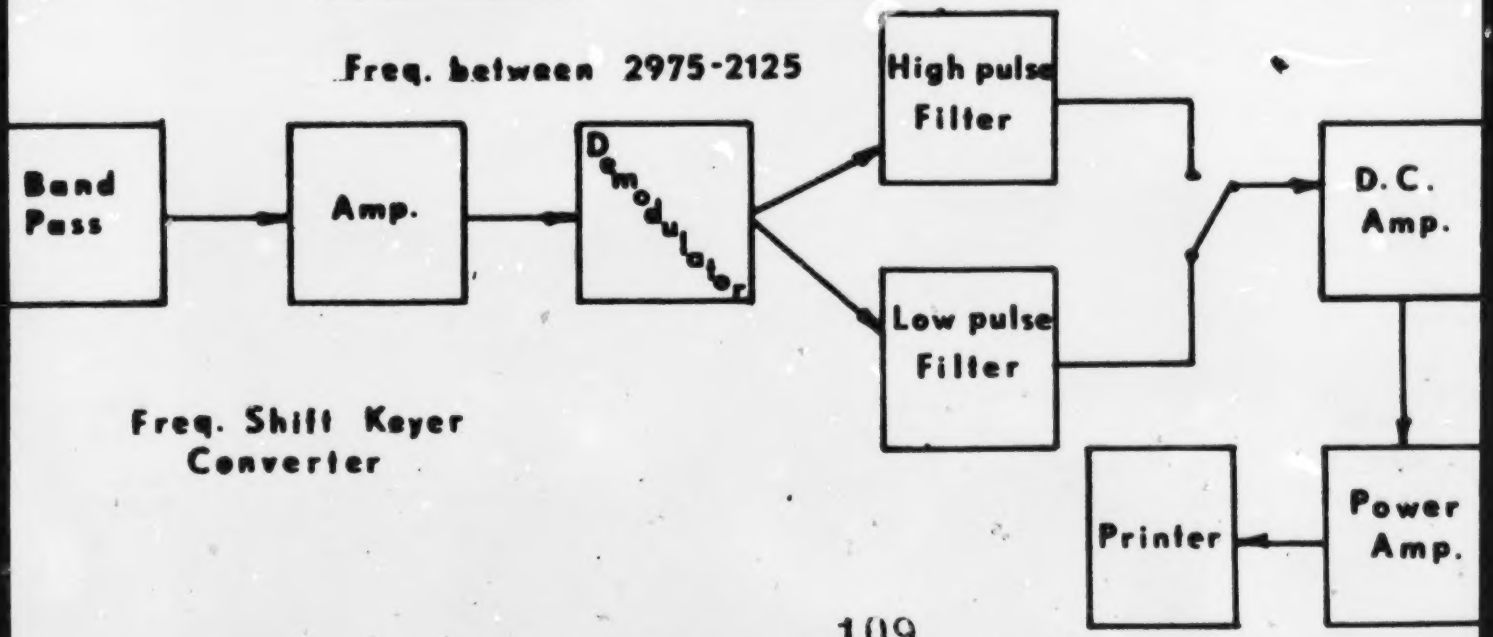


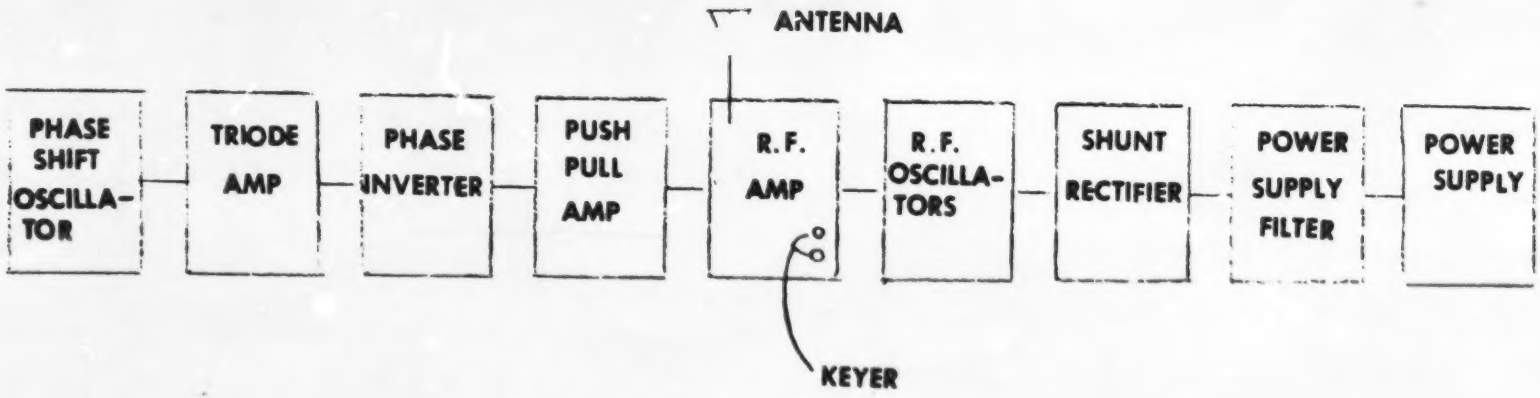
WIRE FACSIMILE

TELETYPE

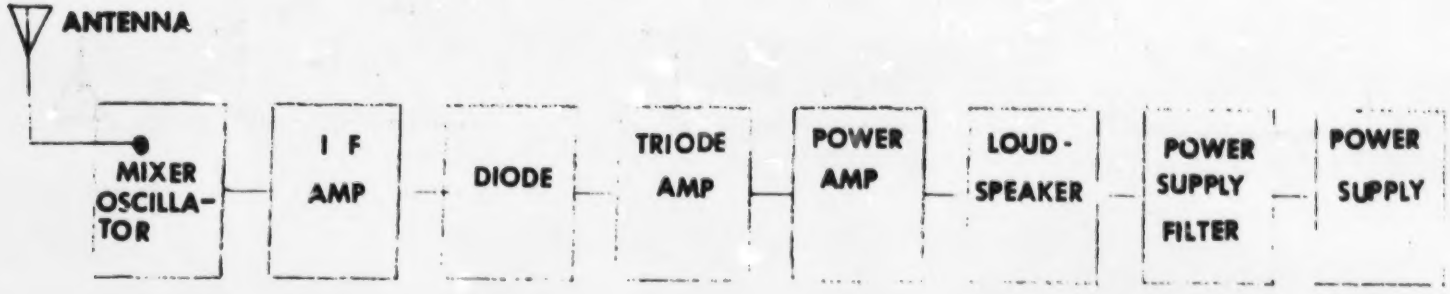

Keyboard
Frequency Shift Keyer
Transmitter

Radio Receiver
Freq. Shift Keyer Converter
Printer

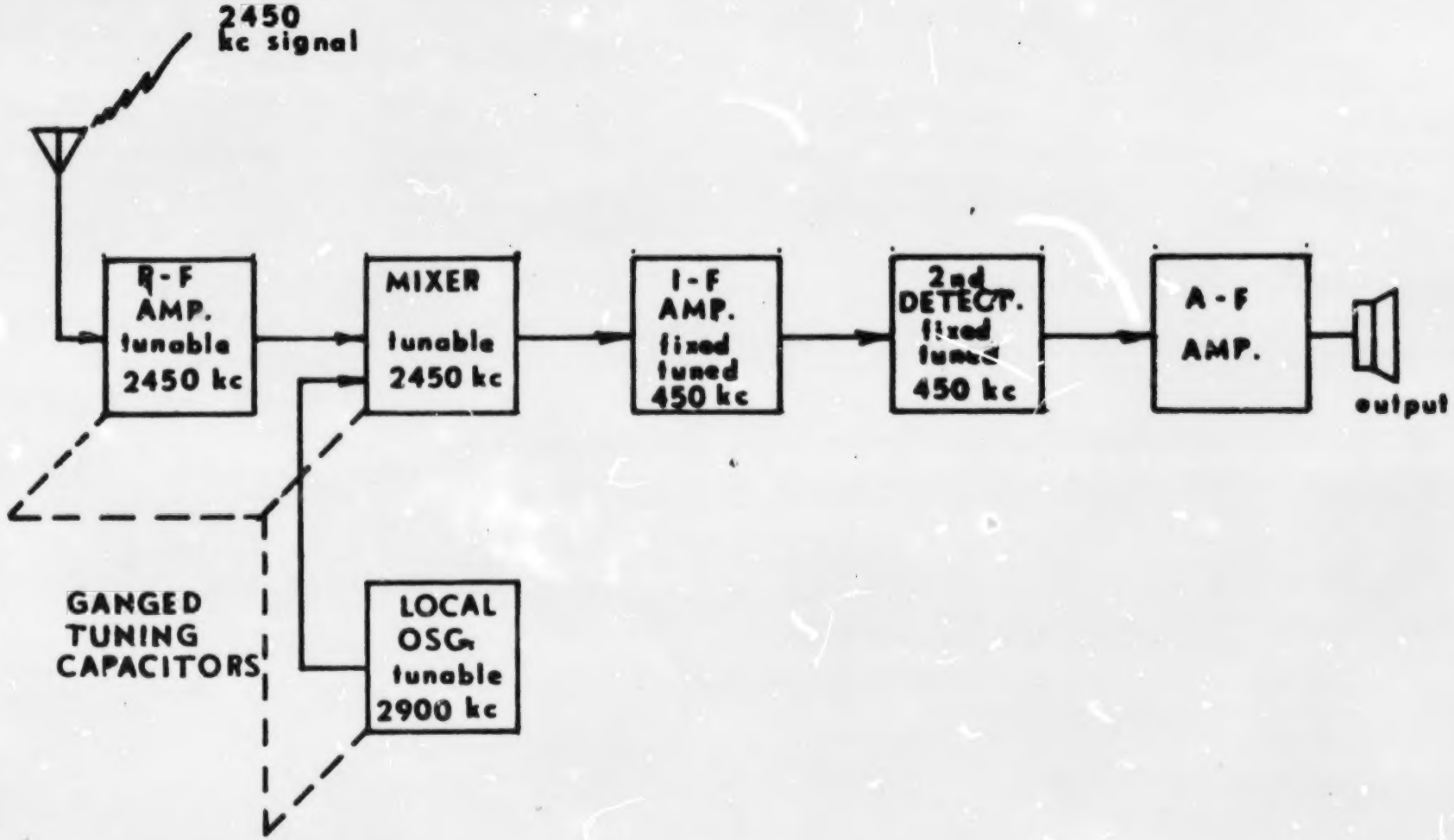

Freq. between 2975-2125
High pulse Filter
Band Pass
Amp.
Demodulator
D.C. Amp.
Low pulse Filter
Freq. Shift Keyer Converter
Printer
Power Amp.



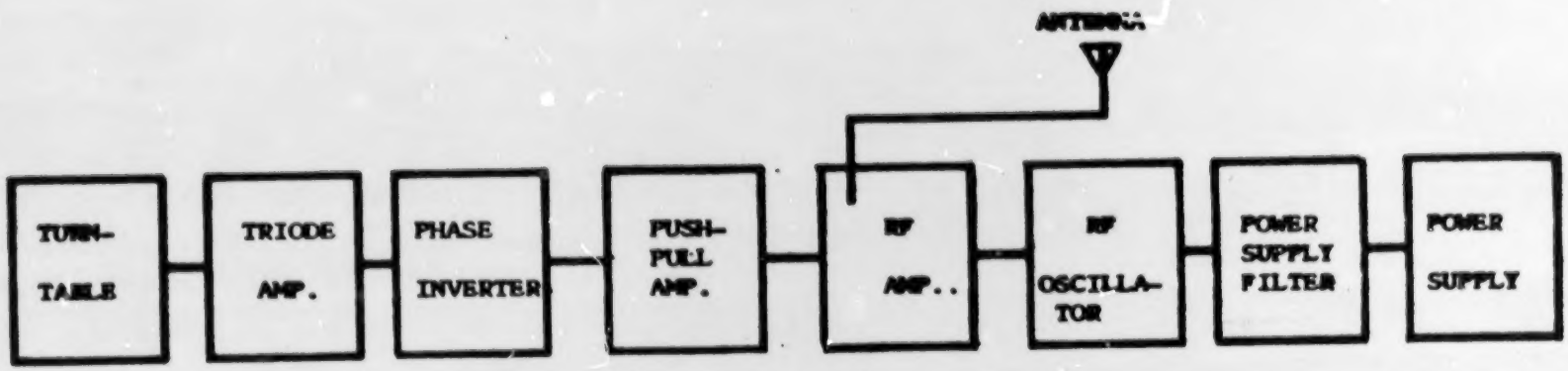
TRANSMITTER



RECEIVER



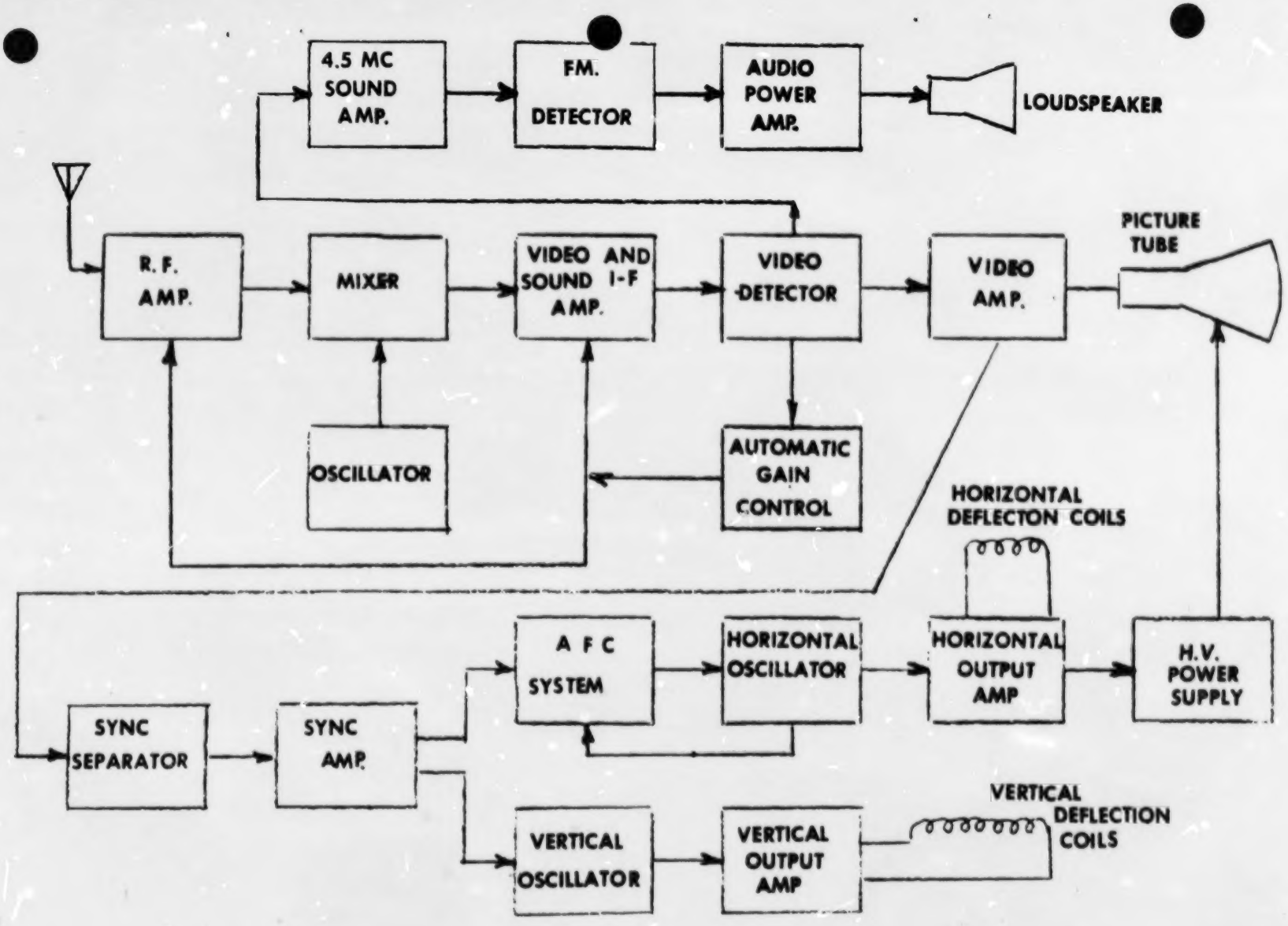
SUPERHETERODYNE RADIO



RADIO TRANSMITTER

114

115

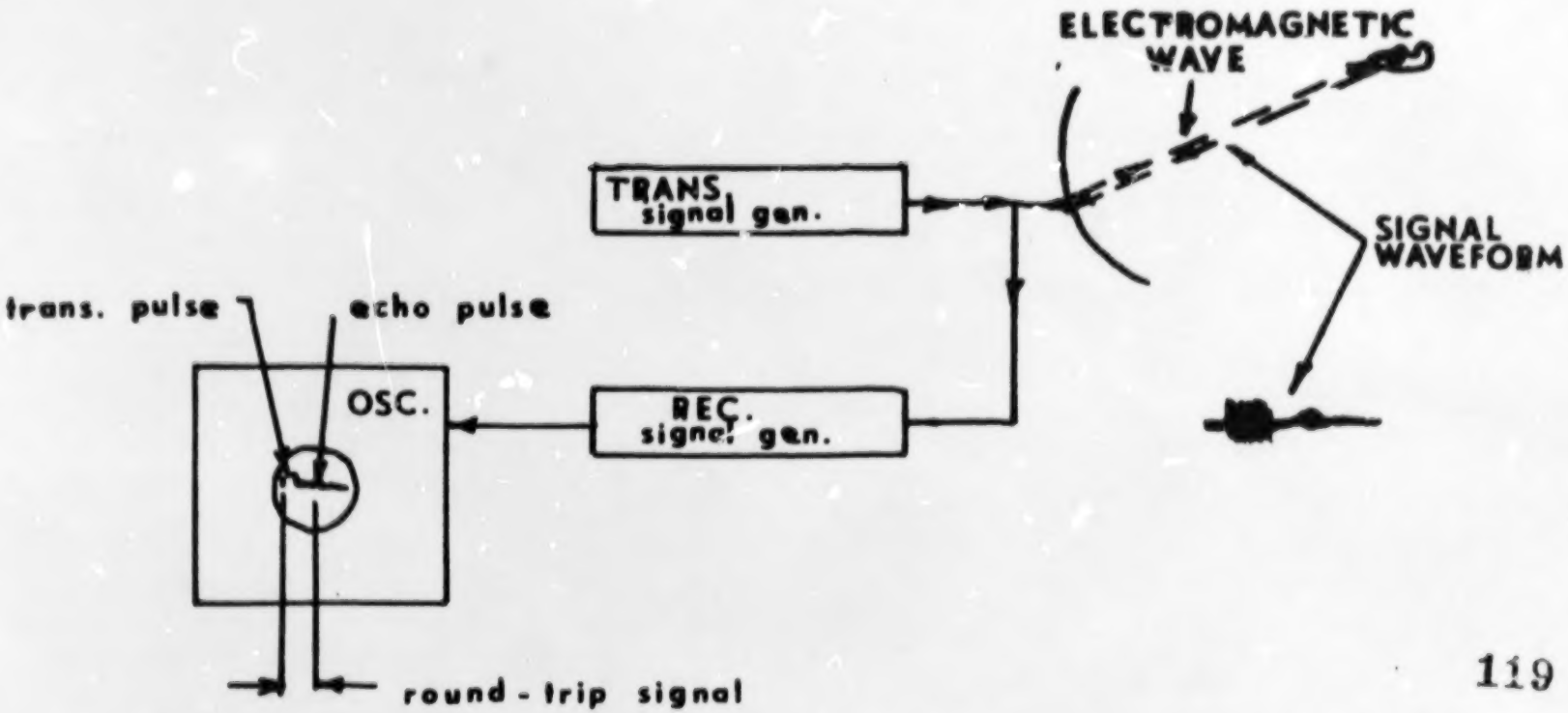


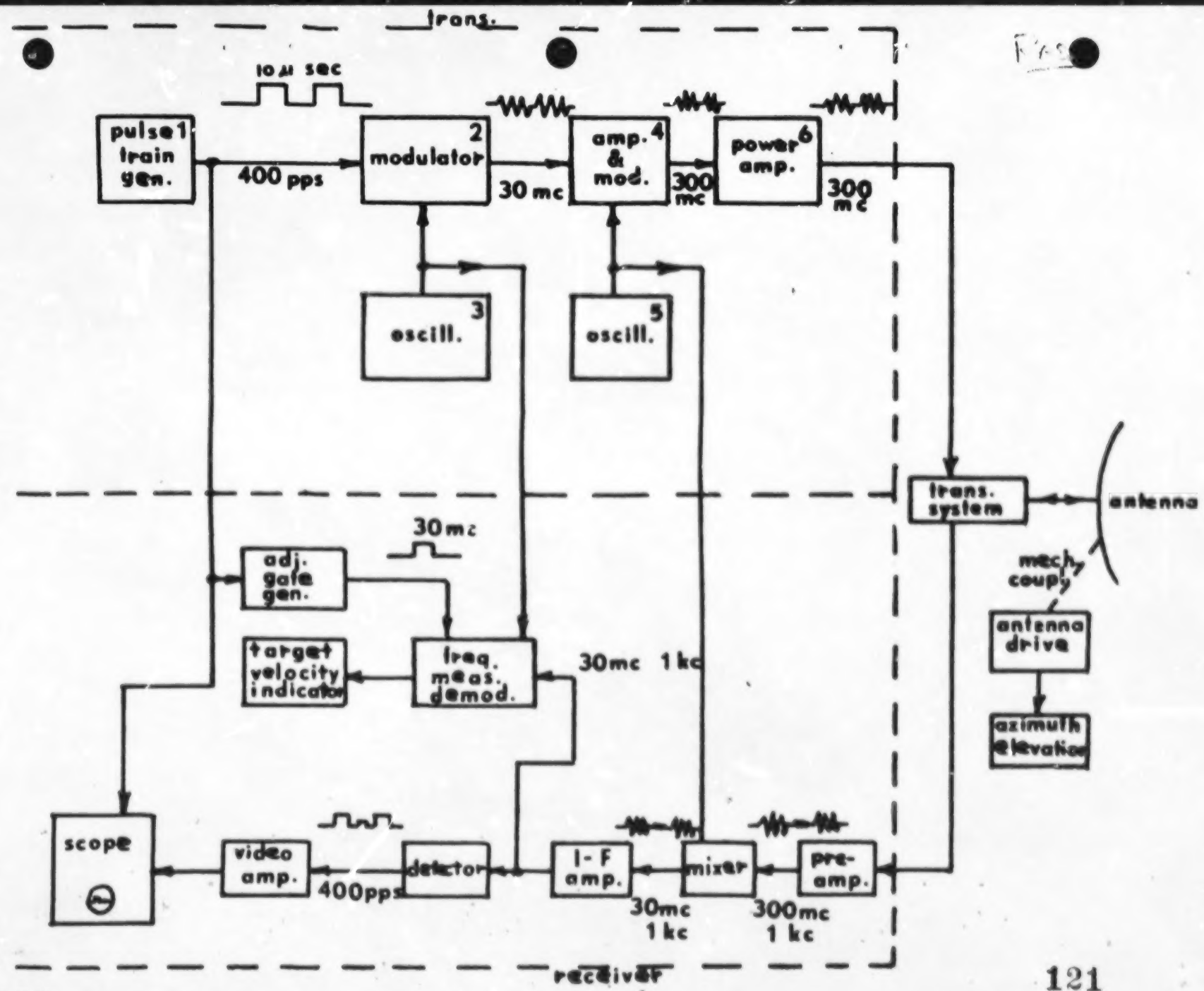
116

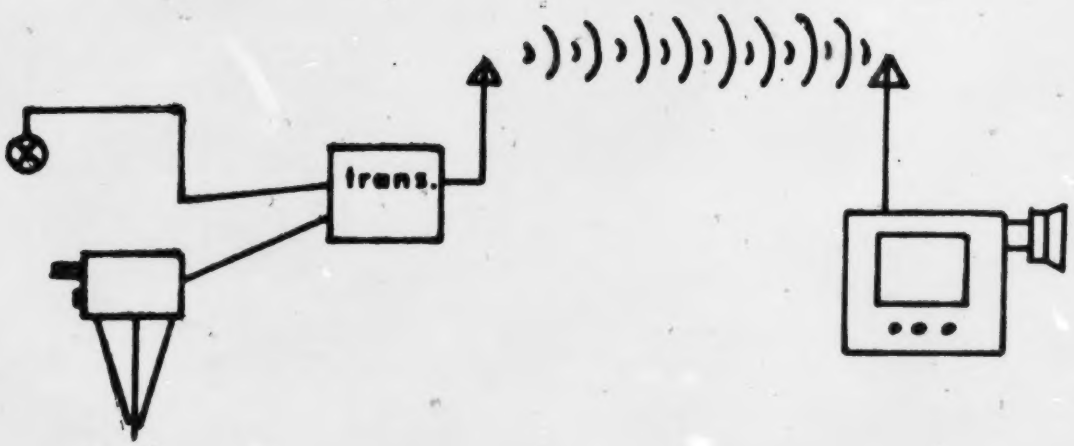
TELEVISION RECEIVER

117

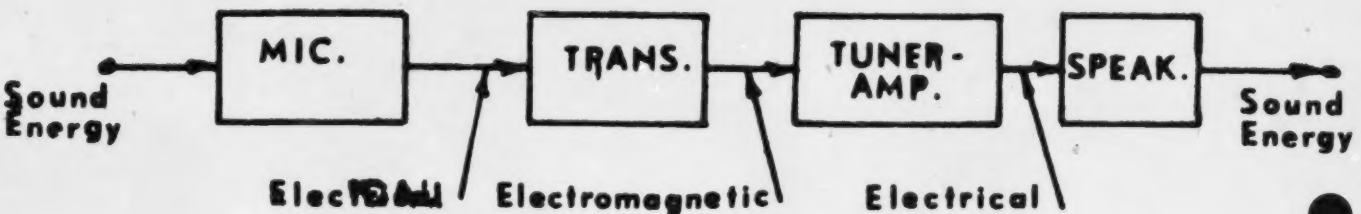
RADAR SYSTEM



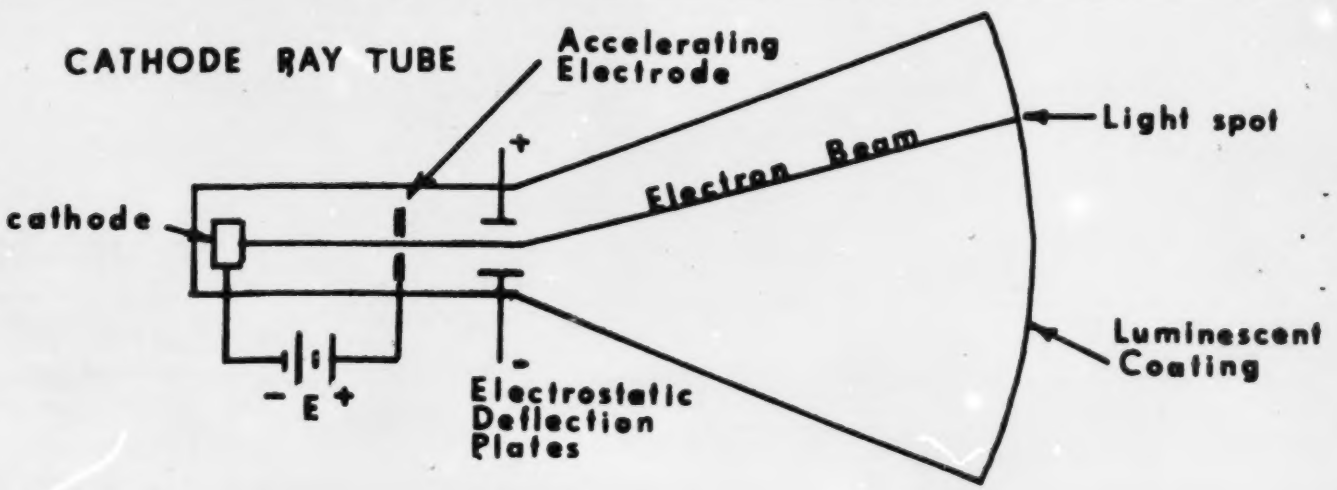

trans.
10 μ sec
pulse 1 train gen.
400 pps
2 modulator
30 mc
4 amp. & mod.
300 mc
6 power amp.
300 mc
3 oscill.
5 oscill.
trans. system
antenna
30 mc
adj. gate gen.
mech. coupl.
antenna drive
target velocity indicator
freq. meas. demod.
30mc 1kc
azimuth elevation
scope
video amp.
400pps
detector
I-F amp.
mixer
pre-amp.
30mc 1 kc
300mc 1 kc
receiver

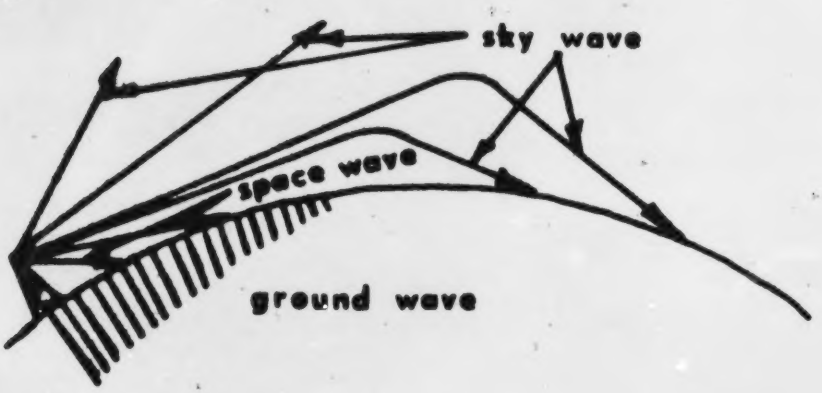


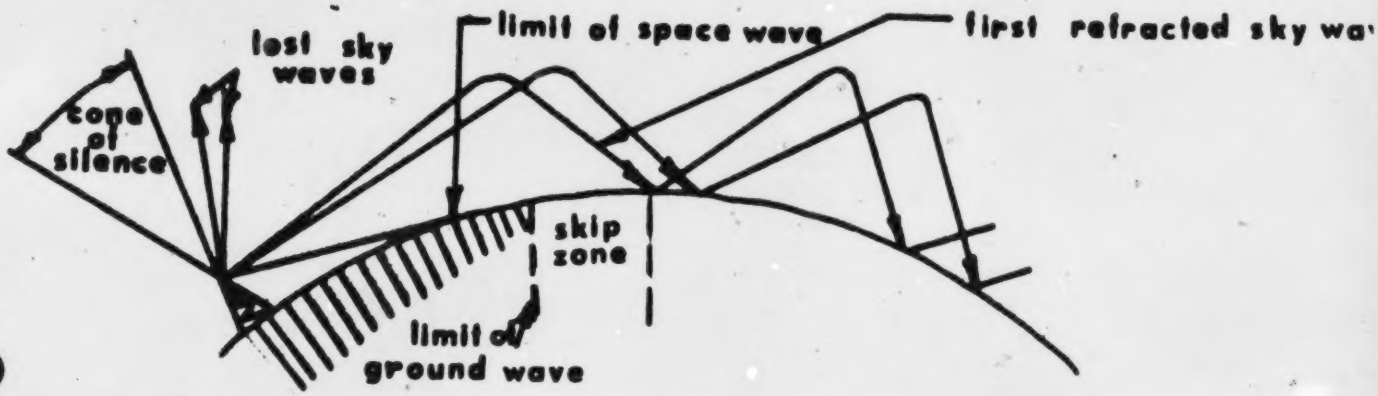
Broadcast System

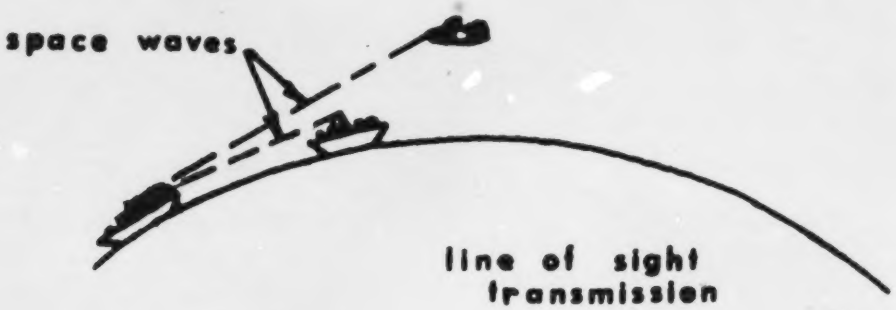


CATHODE RAY TUBE




sky wave
space wave
ground wave


lost sky waves
limit of space wave
first refracted sky wa
cone of silence
skip zone
limit of ground wave


space waves
line of sight transmission

RESOURCES:

Ready access to securing resources in developing an industrial education program are invaluable.

The resources included in the following section of the handbook include guides, texts, journals, educational games and simulations, companies and people.

The resources that are included are not meant to be all inclusive but rather were selected to get the curriculum developer off and running.

RESOURCES

TEXT: The World of Communications Visual Media. McKnight Publishing, Bloomington, Illinois.
Supportive Material: 1. Activity Manual
2. Teacher's Guide

TEXT: The World of Communications Audio Visual. McKnight Publishing, Bloomington, Illinois.
Supportive Material: 1. Activity Manuals
(a) Television Broadcasting
(b) Making Motion Pictures
(c) Introduction and Radio Broadcasting
2. Teacher's Guide

TEACHER'S GUIDE: Visual Communications (Graphics).
Source: CESA #1
Box 439
Ashland, WI 54806

BOOK: Mass Communication Instruction in the Secondary School. (Eric Clearinghous on Reading and Communication Skills). James E. Fletcher, Stuart H. Surlin.

MANUAL: Industrial Communication. (Shawano Industrial Education Curriculum Project).
Source: Shawano High School
Shawano, WI 54166

Handbook: Iowa Industrial Arts Handbook for Introductory Level Graphic Communication.
Source: State of Iowa
Department of Public Instruction
Grimes State Office Building
Des Moines, Iowa 50319

HANDBOOK: American Industry Communication.
Source: University of Wisconsin-Stout
Menomonie, WI 54751

HANDBOOK: Careers in Focus-Exploring Occupations in Communication and Graphic Arts. McGraw-Hill, James R. Schnirel/Ron H. Jenkins.
Supportive Material: Teacher Manual and Key
Filmstrip
Cassette

RESOURCES cont'd.

HANDBOOK: Industrial Communication Systems.
Source: ESEA Title III Project
State of Kansas

GUIDE: Industrial Arts Curriculum Guide 9-12.
1. Drafting
2. Visual Communication
Source: Louisiana State Department of Education
Louis J. Michot, Superintendent

HANDBOOK: Communication Curriculum.
Source: Westfield Unified School District
Westfield, Wisconsin
Fred E. Posthuma

SOURCEBOOK: Learn to See - Photography Projects
Source: Polaroid Foundation
P101, Polaroid Corporation
Cambridge, Massachusetts 02139

BOOKLETS: Prepared as an Aid in Implementing the Wisconsin Guide to Local Curriculum Improvement in Industrial Education, K-12.
Source: The Industrial Education Instructional Materials Development Project
University of Wisconsin-Stout
Menomonie, WI 54751

CURRICULUM GUIDE: Communications Technology.
Source: Commonwealth of Virginia
Department of Education
Richmond, VA 23216

HANDBOOK: Visual Communication Revised.
Source: Kansas State Department of Education
Kansas State Education Building
120 East 10th Street
Topeka, Kansas 66612

TEXT: Graphic Communication. Richard J. Brockuizen. McKnight Publishing, Bloomington, IL

CURRICULUM GUIDE: Industrial Education Graphic Communications.
Source: Homestead High School
Mequon, WI

RESOURCES, cont'd.

A.V.: Kodak Information 1979 Index.
Eastman Kodak Company
Rochester, NY 14650

TEXT: Introduction to Graphic Arts. "American Technical Society", Robert M. Swerdlow

TEXT: Photo Technology. "American Technical Society", Marshall LaCour - Irvin T. Lathrop.
Supportive Material: Photo Technology Learning Activities.

A.V.: Filmstrip Series on - 1. Camera Series
2. Basic Darkroom Procedures Series
Arizona State University

BOOKLETS: Graphic Communications Education Program. PICA Foundation
Source: 301 Hawthorne Lane
Post Office Box 4487
Charlotte, NC 28204

BAVI FILMS: Send to - Bureau of Audio Visual Instruction
University of Wisconsin-Extension
Madison, WI 53706
1327 University Avenue
608-262-1644

Communications - The Printed Word (9595)
18 minutes, color, $11.50

Communications and the Community (6313)
16 minutes, color, $9.50

CAREER EDUCATION RESOURCES

CAREER EDUCATION RESOURCES

TEXT: The World of Communication. (1) Visual Media, (2) Audio Visual. A. Dean Hauenstein and Steven A. Bachmeyer, McKnight Publishing, Bloomington, Illinois.
Supportive Material: 1. Activity Manual
2. Teacher's Guide

BOOKLET: Careers in Graphic Communications.
PICA Foundation
Clemson University
South Carolina Department of Education

RESOURCES

FREE FILMS AND CATALOGS

There are numerous free or inexpensive films available from several sources. Many of these films are excellent in quality and are up-to-date in content. Companies and institutions that promote and produce these films are regularly updating their offerings.

To keep up with current film offerings, it is recommended that individual schools contact the following sources:

Educators' Progress Service, Inc.
Randolph, WI 53956
Ask for current issue of EDUCATORS GUIDE TO FREE FILMS (cost of catalog - write for price).

Association Films, Inc.
512 Burlington Avenue
La Grange, IL 60525
Ask for current catalog of free films.

Modern Talking Pictures, Inc.
5000 Park Street North
St. Petersburg, Florida 33709
No catalog, but ask to be placed on mailing list for new releases.

National Audiovisual Center
General Services Administration
Washington, D.C. 20409
Ask for current listing of free educational films.

Bureau of Audio-Visual Instruction (BAVI)
UW-Extension
1327 University Avenue
Madison, WI 53706
Phone: 608/262-1644
Ask for current catalog of educational films.

FILM LISTING

Following is a sample listing of good, inexpensive or free films appropriate for a secondary level communications course. The first line of the listing gives the title of the film with a catalog order number in parenthesis and rental cost. Under this line is a brief description of the film. The last line of the listing contains the film running time, color, date the film was produced, and a source code letter. Film sources are listed at the end of the film list.

RENTAL FILMS LIST

COMMUNICATIONS EXPLOSION $16.00
Surveys the latest technological development in communications -- how computers, lasers, and satellites may become departures for instant world-wide communications; 3-dimensional television 'talking computer' and other emerging systems and how they may revolutionize man's behavior.
25 minutes, color, 1967, E

LASERS: AN INTRODUCTION 7756 $9.00
How a laser works. Principles of laser operation. Mentions some of the future potential uses of lasers.
14 minutes, color, 1970, E

COMPUTERS AND YOU (U30219) $8.00
Uses computer animation to explain how computer functions - input, control, memory, mathematical solutions or processing, output, and how each operates to produce the final desired results.
15 minutes, color, 1972, C

POSTER (U30078) $8.00
The motivational force of all types of posters is explored. Includes billboards, postage stamps, political posters, 'pop art', record album jackets and three-dimensional posters. Modern television commercials are posters in motion.
16 minutes, color, 1969, C

EXPANDING WORLD OF COMMUNICATIONS (S5778) $8.04)
A fast-paced look at the many technologies being used to expand our ability to communicate. These include computers, microforms, films and video, telephone systems and numerous other electronic devices.
28 minutes, color, 1974, B

WE USED TO CALL IT PRINTING FREE
A fast-moving film filled with scene after scene depicting some phase of graphic communications. Designed to stimulate the students' interest in the printing industry.
27 minutes, color, 1969, D

AAARK -- SOMETHING ABOUT COMMUNICATION (SFP 1876) FREE
Probes into changing concepts about learning and communication. Highlights ways of getting ideas across to others. Reviews advances in audiovisual field and influence of communication on the world.
18 minutes, color, 1969, A

THE PRINTED WORD FREE
A survey of the development, value, and distribution of printed material from the Bible to world news.
23½ minutes, B&W, 1971, D

COMPUTER-AIDED DESIGN AT SANDIA LABORATORIES FREE
Shows high-speed computers used in design and production of printed wiring boards.
8½ minutes, color, 1975, K

CONQUEST OF LIGHT FREE
The story of the laser. Explains basically how it works in a language understandable to a non-technical audience.
10 minutes, color, 1964, F

LASERS UNLIMITED FREE
Explores the laser and examines some innovative uses in the fields of science, industry, and medicine. Original music score and narration by Barry Sullivan.
10½ minutes, color, 1969, F

ALONG THESE LINES FREE
Fast-moving, witty tribute to the evolution of telecommunications, past, present and future, with animation, song and actual film footage. This film illustrates the far-reaching impact of Alexander Bell's now 100-year-old invention.
15½ minutes, color, G

INCREDIBLE MACHINE FREE
Film shows some of the almost fantastic ways that Bell Telephone scientists are using computers in communications research. Contains sequences on computer-generated movies, photographs, music and speech.
15 minutes, color, 1968, F

VISIT TO MARS, A — FREE

Presents a look at the entire MARS system, its history, operations and its part in our world-wide network of communications. MARS stands for Military Affiliate Radio System.
28 minutes, color, 1970, H

MICRO — FREE

Features multiple screen images and a musical score of electronic sounds played on the Moog Synthesizer. Depicts miniature solid state communications devices invisible to the naked eye. Shows, step-by-step, fantastic concepts in the manufacture of tiny electronic components. Among devices shown are laser holography, and the three-dimensional picture process that uses only the laser's light.
14 minutes, color, 1969, M

BEYOND NORMAL VISION — FREE

Shows and explains the fundamentals and technical aplications of high-speed photography. Humorous cowboy and carnival scenes further illustrate the effects of varying frame rates.
10 minutes, color, 1975, K

REVEALING EYE, THE — FREE

Shows advances in knowledge achieved by use of film techniques. From early film pioneers to modern equipment and expertise. Presents a wealth of unique sequences from archives around the world.
19 minutes, color, 1973, L

COMPUTER GLOSSARY — FREE

Full color animation. Defines in basic terms the terminology of computers today.
14 minutes, color, 1968, I

SPACE CONNECTION — FREE

Canada's space program in telecommunications technology. For all audiences.
18 minutes, color, G

FILM DIRECTORY

A United States Air Force
Regional Audiovisual Library
APO, Seattle, Washington 98742

B Media Resources Center
121 Pearson Hall
Iowa State University
Ames, Iowa 50010

C Media Library
C-5 East Hall
University of Iowa
Iowa City, Iowa 52242

D National Association of Manufacturers
Educational Services
277 Park Avenue
New York, New York 10017

E Bureau of Audio-Visual Instruction
University of Wisconsin - Extension
1327 University Avenue
Madison, Wisconsin 53706
Phone 608/262-1644

F Bell Telephone Laboratories
Requests should be made through your local Bell System Telephone business office. If your community is not served by the Bell System, write or call the manager of the nearest Bell System office. Borrower pays return postage. Return after 3 days via UPS or Air Freight.

G Canadian Consulate General
310 South Michigan Avenue
Chicago, Illinois 60604
Borrower pays return postage. Return as soon as possible.

H Department of the Army
Camp McCoy, Wisconsin 54656
Obtain special forms (DA Form 11-44) from above address to order films. Borrower pays transportation cost one way.

SUGGESTED LOCAL TOURS

This is a list of possible tours to area companies or schools who deal primarily in communications.

Telephone Company

Paper Mill (generally students over 12 years)

Newspaper Office and Plant

Print Shop

Data Processing Center

Radio Station

Engineering Office

Photo Studio

Area Technical Schools

Military Base or Installation

Ham Radio Operator's Base

Architect's Office

TV Station

Computer Center

HUMAN RESOURCE LIST

This is a list of people who may be able to come to your class and give speeches or demonstrations about their jobs and new things happening in the field of communications.

Architect	Photographer
Engineer	Computer Programmer
Draftsperson	TV Camera Operator
Radio Personality	Ham Radio Operator
Telephone Co. Representative	Cable TV Representative
Printer	Others

FREE AND INEXPENSIVE LEARNING MATERIALS (PAMPHLETS)

COMMUNICATIONS IN SPACE. Smithsonian Institute Press, Publications Dist., 1242-24th Street NW, Washington, D.C., 20037. 22 pages, 50¢. Description of 8 comm. satellites from "Score to Echo II".

National Association of Broadcasters, Public Relations Department, 1771 N. Street N.W., Washington, D.C., 20036. Single copies free.

1. Radio U.S.A. 1967, 16 pages. The science of broadcasting in layman's terms.
2. Study Guide on Broadcasting. 1966, 20 pages. Examine the effectiveness, aims and problems of radio and TV broadcasting.

CABLE IS HERE. Booklet, 12 pages. Describes cable services currently available and changes in the future. National Cable TV Association, Susan Q. Kelly, Public Relations Coordinator, 918-16th Street N.W., Washington, D.C., 20006.

RADIO FACTS POCKET SIZE. 38 pages, High School and College. Facts about radio today, advantages and impact on American life.

POCKET GUIDE TO THE GLOBAL SATELLITE SYSTEM. 32 pages, request on official stationery, limit of 10 copies. The global satellite system as a carrier of international communication is explained. Communication Satellite Corporation, Manager of Public Relations, 950 L'Enfant Plaza S.W., Washington, D.C., 20024

COMPUTERS, 93 pages, single copies only. History and how they work are given. Some uses of computers given. U.S. Department of Energy, Technical Information Center, Box 62, Oak Ridge, Tennessee 37830.